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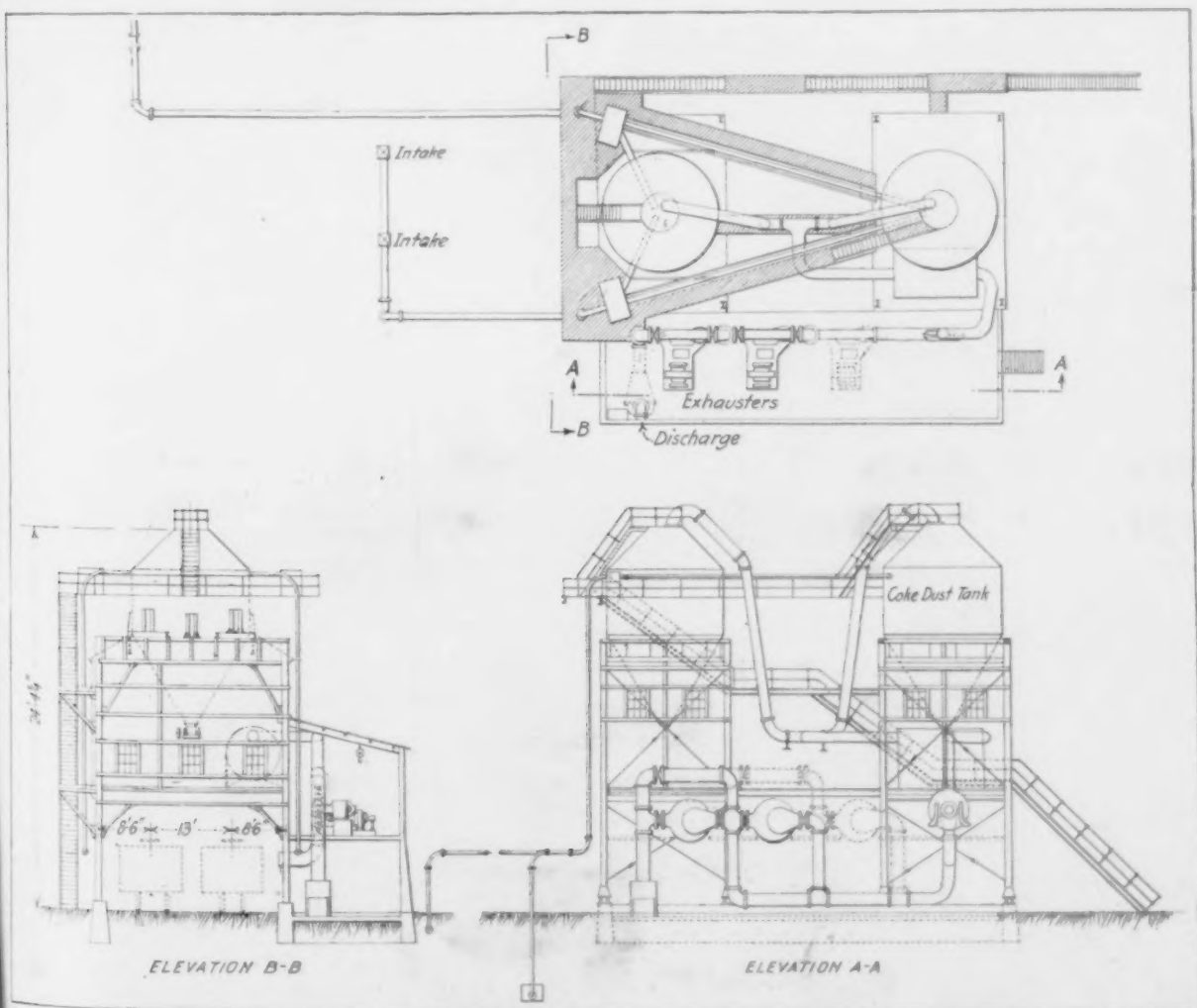
Recovery of Coke Breeze at Skip Hoists

Pneumatic Conveyor at Edgar Thomson Works, Carnegie Steel Co., Carries Breeze to Storage Tanks—Automatic Control Features—Applied Also to Unloading Lime

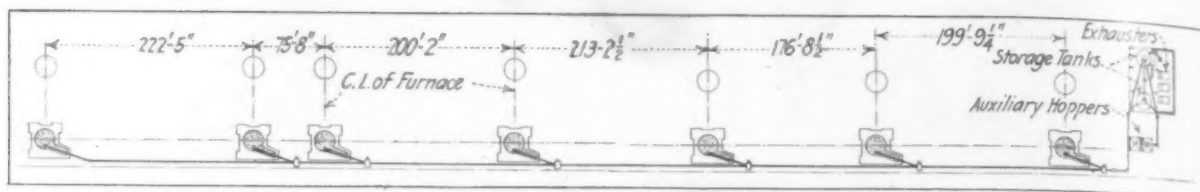
PNEUMATIC conveying systems for handling coke screenings from blast furnace ship-hoist pits and for removing lime from railroad cars are to be installed at the Edgar Thomson Works of the Carnegie Steel Co. by the Guarantee Construction Co., New York. The design of the conveyors is practically complete and fabrication of parts is now under way. In the case of the coke, the charge to the skip bucket from the larry car will fall over a screen through which the fine coke will drop to the pit, and the plant provides for emptying the pits

periodically by suction maintained by centrifugal exhausters which will deliver the coke breeze to storage hoppers for subsequent use. Besides the fact of the unusual method of handling coke and lime, interest attaches to the apparatus to control automatically the operation of the exhausters whatever may be the load.

The coke-handling system comprises a main conveyor duct with branches extending beneath the skip-hoist hoppers with an intake at each, two storage tanks, a dust collector or air scrubber, and two



Air from the storage tanks passes through the washer for final cleaning before reaching the exhausters. The exhausters' by-pass valves are motor-driven and automatically adjusted to maintain series operation. A by-pass valve in each intake branch to the storage tanks will permit either tank to be used. A bifurcated chute and a separator below each tank (not shown) will sort the coke breeze according to size and direct it to cars



Coke breeze falling into the skip-hoist pits will be transferred from them to the storage tanks. Provision for automatic regulation of the exhausters is made to compensate variations in the length of the conveyor duct

General Electric exhausters, with provision for a third. Each exhauster will be direct connected to a 150-hp. direct-current motor and will be controlled by automatic governing apparatus actuated by the air blast. This governing apparatus consists of a steel disk which will be balanced against the air blast by adjustable counterweights and steadied by a dash pot. Reduced air blast will allow the counterweights to raise the disk and speed up the exhauster. Increased air blast will force the disk in the reverse direction and reduce the exhauster speed, thus to maintain a constant flow of air under all conditions.

At each intake will be a button switch for throwing the exhausters in or out of service. When the conveyor duct in use is short, say, not over half the length of the line, only one exhauster will be required and its speed, determined by the governor, will vary with the frictional resistance of the duct. When the length of the duct causes frictional resistance which cannot be overcome by the single exhauster, or if the coke dust is fed too rapidly or clogs the duct, the second exhauster will be automatically thrown in in tandem by the governor.

As indicated in the illustration, the exhausters are to be fitted with by-pass piping and valves to facilitate this operation. The valves will be operated by electric motors controlled by the constant volume governor and will be automatically properly adjusted when the second exhauster is thrown in or out of service.

The main conveyor duct will consist of a 10-in. pipe paralleling a line of seven blast furnaces and terminating at its discharging end in the two storage tanks. The coke screenings, as stated, will be collected in pits, one for each furnace, located beneath the loading hopper of the skip-hoists, and will enter the main conveyor pipe through the branch lines. The conveyor equipment will have a rated capacity of 40 tons per furnace in 24 hr. and the total distance traversed from the storage tanks to the farthest furnace pit will be approximately 1350 ft. The discharge head to the storage tanks, that is the net lift, will be approximately 63 ft. above the level of the pits. The automatic governor arrangement for regulating suction with load is expected to maintain full capacity under all conditions of service.

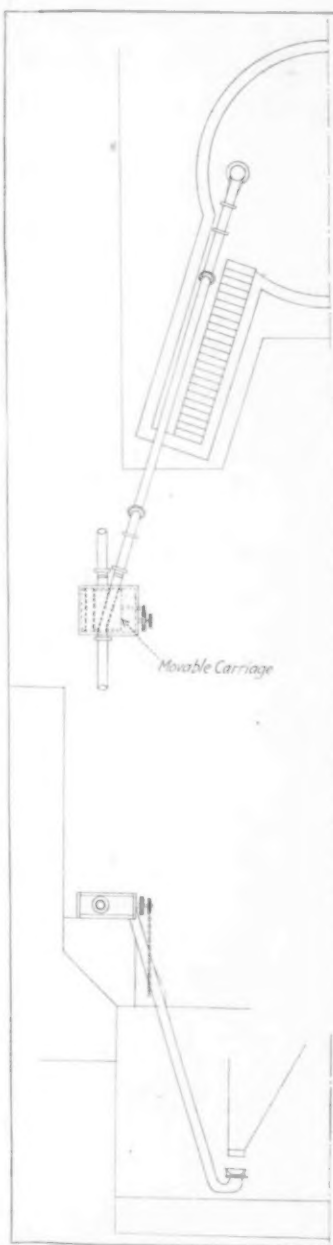
The design provides for separate cleaning of

each pit and the branch pipes will be equipped with specially designed valves to disconnect automatically all pits from the line excepting the one being emptied. This valve is to comprise a section of the main conveyor pipe and a section of the corresponding branch pipe. The two pipe sections will be mounted on a carriage which will move within a stationary air-tight box. Into this both the main suction line and the branch line will open. The movable sections will be operated by a screw, the screw which moves the carriage, being operated by the larryman by an endless chain. When one suction circuit is made continuous the other will be automatically broken, and the open pipe of the broken circuit will be sealed by a plate attached to the carriage and moved with it. This makes a positive interlocking system in which only one inlet can be operated at a time. It is important that the stationary box enclosing the sections prevent air from leaking into the suction line.

The two storage tanks for coke dust will have each a capacity of 200 tons and will be provided with valves similar to those designed for use on the conveyor pipe, so that when one tank operates the other will be disconnected free for cleaning. The tanks will act also as storage bunkers for coke dust from a second row of four furnaces extending at right angles to the other seven. This dust will be brought in cars to the track hoppers indicated in the illustration and lifted into the storage tanks through an independent pipe.

Air will be exhausted from the tanks through large diameter pipes which will bend down and join to a common header as shown. Two hand-operated gate valves, one on either side of the union to the common header, will be used to maintain suction in one tank or the other as desired. The large diameter of these pipes insures low velocity of air so that a minimum amount of dust will be carried over from the storage tanks. This separating action will be supplemented by the large diameter of the storage tanks and the correspondingly low velocity of air through them.

Such fine particles of dust as may be carried over from the storage tanks will be removed before reaching the exhausters by an air washer located as shown. This consists of a sheet steel compartment with vertical baffles and water sprays. The air intake will be at the upper part of one end and the outlet at the upper part of the opposite end.



Each branch duct will be provided with a by-pass valve consisting of a section of the main conveyor duct and a section of the branch pipe mounted on a carriage. Throwing any branch in service will automatically disconnect all others

The traversing air will be directed alternately up and down by the baffles and will be washed by the water from the sprays. The spacings between the baffles will increase in width toward the discharging end to lessen the velocity of flow and provide greater time for thoroughly removing the dust. A water-sealed overflow pipe will drain the water as it collects at the bottom of the washer.

An interesting feature of the piping equipment of the conveyor is in the design of bends. These will be protected on the outside circumference by segmental semi-steel wearing pieces of the same curvature as the bends and clamped on by U-bolts. They are approximately 3 in. thick at the center, and will provide renewable wearing surfaces at all turning points in the conveyor duct.

Pneumatic Conveyor for Lime

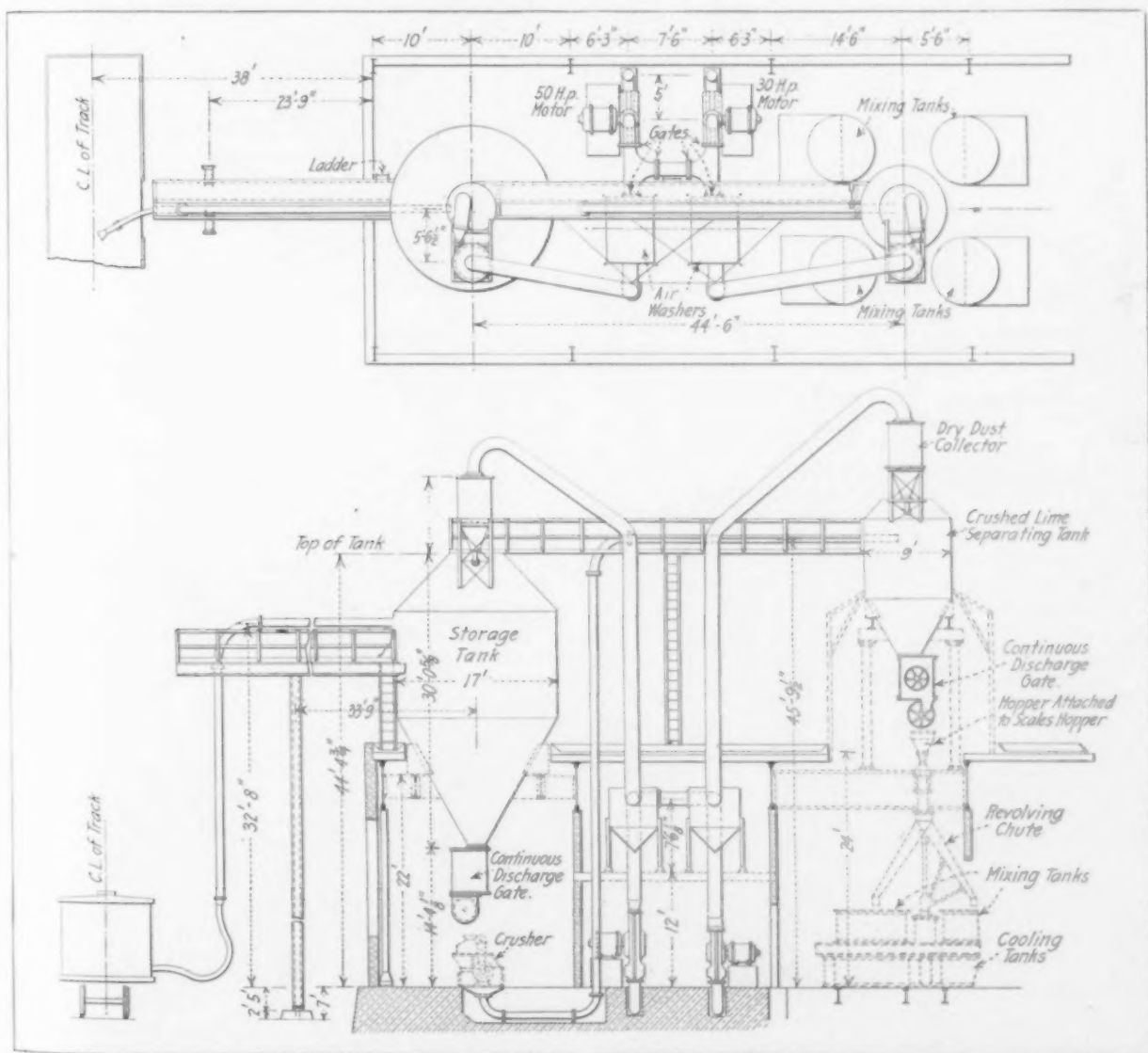
The Carnegie Steel Co. is also planning a suction conveyor for handling lime used for treating boiler feed water at its Edgar Thomson plant. Handling lime is hardly regarded as an agreeable task because of the large amount of dust set up, but it is believed the suction conveyor will remedy this condition.

The plan for handling lime provides for a continuous process by which the lime will be unloaded from box cars in which it comes to the plant, crushed, weighed and delivered to mixing tanks for use in treating feed water. The use of the suction conveyor, it is believed, will obviate dust clouds

within the car, so that a man may without discomfort direct the suction nozzle which will be attached to a flexible hose for picking up the lime. Material from powder to lumps of 100 cu. in. may, it is said, be handled in quantities up to 10 tons per hour with power requirements varying from 20 to 25 hp. The lime as unloaded will be carried by the air blast through an 8-in. pipe to a storage tank of 20 tons capacity. From here it will pass through a continuous discharging gate at the bottom of the tank into a crusher, there to be crushed and transferred by suction to a second tank indicated in the illustration as a crushed lime separating tank. It will then pass through another continuous discharging gate into the scale hopper, automatically weighed and dumped to mixing tanks in proper quantities for treating feed water.

Air will be exhausted from each tank and will pass through dust collectors and air washers before reaching the exhausters. The dust collectors will be of the usual centrifugal type, allowing the dust to settle and fall back into storage tanks, above which they are located. They are supplemented by the air washers, which are similar to those employed in the coke-conveying apparatus. A by-pass pipe connecting the outlets of the washers will permit the use of either exhauster as desired for either branch of the installation.

Continuous discharging gates are required as the process is not intermittent. Each gate will consist of radial revolving pockets of sheet steel.



The plan for handling lime provides a continuous process by which the lime will be unloaded from cars, crushed, weighed and delivered to mixing tanks. The gate valves and by-pass pipe will enable the use of either exhauster on either tank. The continuous discharging gates are designed to prevent air infiltration.

As the hub revolves the lime will pass into the compartments and fall into the hopper. The contact between the plates and their casing will be airtight, and only negligible quantity of air, it is said, will be carried back into the tanks. A revolving drum or rotary feeder above the gate will control the rate of discharge of the material.

HEAVY TIN PLATE OUTPUT

Bureau Estimate Shows Large Increase for Present Year

WASHINGTON, Aug. 28.—A total production of tin plate for the calendar year 1917 of 32,898,597 base boxes is foreshadowed by a special census of the industry just completed by the Bureau of Foreign and Domestic Commerce. These figures as compared with mill obligations make a very interesting exhibit in connection with the shortage of tin plate throughout the world at the present time.

Returns received from 15 of the leading tin plate producers of the country indicate an increase of approximately 25 per cent in the domestic production of tin plate this year over last. The returns for the six months ended June 30, last which are based upon actual production, show an output of 16,038,732 boxes. The estimated production for the half year ending Dec. 31, 1917, is 16,859,865 boxes.

Notwithstanding the fact that the estimated production of the calendar year 1917 is 5,918,603 boxes more than in 1916, practically all of the plate that can be produced has been contracted for to be delivered before December 31, next, and a shortage is in sight equal to the output of the first two months of 1918. Following are the official figures as reported by the Bureau of Foreign and Domestic Commerce:

Production of tin plate, boxes:	
1914	20,271,683
1915	22,925,437
1916	26,979,994
1917, first half	16,038,732
1917, second half (estimated)	16,859,865
1917, total	32,898,597
Contracted for delivery first half of 1917 and not shipped June 30, 1917:	
Domestic	2,424,261
Export	982,984
Contracted for delivery second half of 1917:	
Domestic	13,747,730
Export	1,346,293
Total obligations of mills for delivery last half of 1917	
1917	18,501,218
Estimated 1917 production for export	3,405,071

In giving out these figures, the bureau calls attention to the very urgent necessity that substitutes for tin plate be used to the greatest possible extent, as the Government's demand upon the steel producers for war material is daily growing heavier and this may at any time result in decreasing the supply of steel for the tin plate mills, thereby resulting in a diminished production of plate. The bureau is informed that England and France are both experiencing a shortage in tin plate and have taken steps similar to those pursued in this country to conserve the supply of tin cans for use as food containers.

Figures compiled by the Bureau of Foreign and Domestic Commerce showing the export movement of tin plate for the seven years beginning with 1911, the first year of the so-called pre-war period, and ending June 30, 1917, constitute a striking exhibit, showing as they do an increase in exports of no less than 645 per cent in quantity and more than 1000 per cent in value. Shipments in 1911 aggregated 70,199,398 lb. valued at

	Pounds	Value
1911	70,199,398	\$2,489,094
1912	181,899,366	6,269,325
1913	164,362,281	5,767,043
1914	105,899,762	3,643,806
1915	179,221,644	5,712,104
1916	516,257,473	18,703,773
1917	521,861,390	28,404,433

\$2,489,094. In 1912 there was a marked increase, the total exports amounting to 181,899,366 lb. valued at \$6,269,325, but during the next two years there was a heavy decline. In 1915, however, the upward tendency

again developed and in 1916 there was an increase of nearly 340,000,000 lb. The following table shows the exports from the beginning of the pre-war period to the end of the fiscal year just closed:

The extraordinarily comprehensive export distribution of American tin plate is graphically shown in figures which have just been made up by the Bureau of Foreign and Domestic Commerce showing the exports by countries for the fiscal year 1917 as compared with 1916. These figures emphasize the great increase in the cost of iron and steel products during the past year, for while the gain in exports in 1917 over 1916 was less than 1 per cent, the increase in value was more than 50 per cent. The minimum amount shipped to any one of the 11 countries enumerated was 4,384,430 lb., which went to Mexico, while the maximum was 133,624,965 lb., shipped to Canada. Argentina ranks second in 1917, taking 51,378,225 lb., a gain of 20 per cent over 1916 and understood to be due to the demand for cans for the packing of meats for war supplies. Japan took 46,430,277 lb. in 1917, ranking third, but this total was a substantial decrease from the 55,189,308 lb. absorbed in 1916. The following table shows the details of the export movement by countries of destination for the two fiscal years 1916 and 1917:

Country	1916		1917	
	Pounds	Value	Pounds	Value
United Kingdom	66,715,359	\$2,288,425	19,477,988	\$854,090
Canada	117,364,108	3,979,108	133,624,965	7,691,901
Mexico	6,154,491	211,179	4,384,430	289,728
Cuba	8,564,353	304,371	8,975,391	535,407
Argentina	41,926,801	1,519,110	51,378,225	2,954,310
Brazil	24,540,519	860,167	31,154,451	1,718,225
Uruguay	8,422,480	288,931	11,586,175	728,174
China	35,408,911	1,248,678	30,515,220	1,534,253
British Indies	45,548,953	1,656,154	39,841,103	1,623,506
Hongkong	31,940,917	1,269,799	22,169,791	1,173,017
Japan	55,189,308	2,315,506	46,430,277	2,722,426
Other countries	74,481,273	2,762,384	122,260,374	6,559,402
Total	516,257,473	\$18,705,812	521,861,390	\$28,404,433

For many years, Canada has been the largest consumer of American tin plate, but while in 1914 that country took 75 per cent of our total exports, in 1917 we shipped to the Dominion less than 26 per cent.

New Tin-Plate Plant at Warren, Ohio

The Liberty Steel Co., organized some time ago to build a sheet mill plant at Warren, Ohio, has changed its plans, and will erect a tin-plate plant. The company is installing eight tin mills at this time on one drive, which, however, has a capacity for 12 mills. It is the intention of the company to install these other four mills after the first eight have been started. For the eight mills there are being installed 12 to 14 tin pots, and a very modern tin house is also being erected. Contracts for all this equipment have been placed. A main mill building to contain the hot and cold mills, shears, heating and annealing furnaces, and other equipment is a two-aisle building, each aisle being 75 ft. wide with 30-ft. lean-tos on each side, each aisle being about 500 ft. long. The tin mills are being built by the Hyde Park Foundry & Machine Co., Hyde Park, Pa., the cranes by the Pawling & Harnischfeger Co., the motors will be furnished by the Westinghouse Electric & Mfg. Co., gears by the Fawcus Machine Co., and the pickling machines by the Mesta Machine Co. The company expects to turn out between 650,000 and 750,000 base boxes of tin plate per year, with its first equipment of eight hot mills, and is counting on starting operations in February or March next year. It expects to be in position to deliver tin plate at least in the second quarter of 1918. E. A. Clark is president.

The Wheeling Mold & Foundry Co., Wheeling, W. Va., has been making improvements at its plant for work on a United States Government shell contract. The company formerly had two separate shell departments, one machining 3-in. American and the other 3-in. Russian high-explosive shells. These two departments have now been consolidated and will work on the new type American H. E. shells. About 25 additional lathes of the company's own manufacture have been added to the equipment.

Flash Annealing of Large Projectiles*

In the manufacture of large projectiles, the rough shell is brought to a temperature of 1650 deg. Fahr. and then waterquenched. This leaves the metal, especially the outer skin, glass hard, and this must be softened to allow machining without affecting the hardness of the inner metal. To obtain this result, the shell surface must be heated to about 900 deg. Fahr., with sufficient rapidity to preclude the possibility of the inner sections of the metal having time to absorb enough heat to materially affect their hardness. This softening of a thin skin of metal is called flash-annealing.

The accomplishment of the effect explained above has been a rather difficult task. In one of our large steel mills quite a variety of types of oil and electric furnaces were tried out, but the shells would come through with hard spots and could only be machined with difficulty. Two Surface Combustion Company's gas-fired flash-annealing furnaces were finally installed and satisfactory results obtained.

The furnaces are run on a low-pressure system, air being delivered from a positive pressure blower. The quality and quantity of the mixture are controlled

through an inspirator, thus eliminating any air pipes and making a very compact furnace. In this second installation it was deemed advisable to set the furnace at the floor level and build a platform around to enable the men to operate from a convenient working level.

In operation it takes 1½ hr. to bring furnace from room temperature and soak it at 1650 deg. Fahr., using 720 cu. ft. of 600 B.t.u. gas per hour. This time can be cut down if desired. When the furnace has come to the desired temperature the door is swung open and a shell lowered into it by an overhead crane. The shells remain in furnace anywhere from 7 to 14 min., the average being 10 min. During this time a gas rate of 540 cu. ft. per hour is maintained and at the end the furnace temperature drops to about 1420 deg. Fahr., while the shell surface is brought to about 900 deg. Fahr. After the shell has been removed and the door closed the gas rate is raised to 720 cu. ft. per hour, bringing the furnace back to 1620 deg. Fahr. in 5 min.

In this manner two furnace units turn out seven shells, weighing 330 lb. each, per hour. A few minutes are lost in handling the shells, and during this time the furnace temperature is held with 480 cu. ft. per hour with the door open. The total gas consumed per hour by the two units amounts to 1170 cu. ft., or 168 cu. ft. per shell.



A Mixture of Gas and Air at a Low Pressure Is Delivered at a Tangent with the Inner Wall of the Furnace by a Series of Radially Placed Burners to Produce a Revolving Sheet of the Mixture and Insure a Uniform Temperature to Soften a Thin Skin of Metal on the Projectile

by the builder's one-valve low-pressure control. The heavy firebrick walls of the furnace, backed up by ample insulation, are incased in a heavy sheet metal casing, mounted on a cast-iron base. The base rests on a foundation set in a shallow pit of a depth to bring the top to a convenient working height. The covers are of the usual swing type.

Later, due to manufacture of a larger shell, an order for two additional units was placed. In the latter type of furnace, the burners are placed radially, and their nozzles are made, so as to shoot the mixture tangentially upon the inner furnace walls. This causes a revolving sheet of mixture, thus giving rise to a scrubbing action of the hot gases, insuring as nearly a uniform temperature as possible at all points on the surface of the furnace. When furnace is cold, the tunnels at the end of burners allow complete combustion of the mixture to take place by retarding its velocity before the cold furnace walls are reached. These furnaces are of a later design, using firebrick walls and insulation as in the former installation, but run on a high-pressure gas system.

The quality and quantity of the mixture are controlled by a single-pipe, one-valve high-pressure control. Gas at 2 in. of water pressure is raised to 10 lb. gage pressure by a booster. This high-pressure gas draws in the necessary amount of atmospheric air

Adopts Group Insurance

The Moore Drop Forging Co., Springfield, Mass., has arranged to insure the lives of all employees who have been with the company for one month, through a group insurance policy. Persons in the employ of the company for less than three months will receive \$200 insurance, and the amount of protection increases with length of service until, when an employee has been with the company for three years, he will be insured for \$1,000.

Each employee may select his own beneficiary, and an attractive certificate of insurance will be issued. On the second page of the certificate is a half-tone of the plant, and on the third page a letter from the company to its employees. The letter says, in part:

We all know that the health, happiness and co-operation of its employees are important factors in the success of this corporation.

It is also clear that freedom from worry on the part of any man or woman is necessary to the fullest enjoyment of this condition of well-being.

Realizing this, the Moore Drop Forging Co. has arranged to have your life insured in Massachusetts Savings Bank Life Insurance and herewith delivers to you this certificate of insurance.

This certificate is issued without any expense to you. In effecting this arrangement, the Moore Drop Forging Co. desires to show, in a practical manner, the value of true co-operation and its appreciation of faithful service as rendered to this company.

This insurance is issued by the insurance department of the Berkshire County Savings Bank, and was arranged for by Harry W. Kimball, 307 State House, Boston, the secretary of Savings Bank Life Insurance, under the management of the commonwealth.

The first half of an initial trip of coal barges from St. Louis to St. Paul, which is to be completed with a return load of iron ore has been completed through the co-operation of the Government with the Mississippi Valley Iron Co., of which Edward F. Goltra is president. The barges, each carrying 1000 tons of coal and numbering six in all, were towed by a Government steamer. The return trip with ore will be made within a week or 10 days and will determine whether the plan will justify continuance on a permanent basis. The ore will come from the northern Minnesota iron ore fields.

The Pennsylvania Railroad is said to be breaking all records at its Altoona, Pa., car shops by the construction of nine completed all-steel box cars daily.

*From information supplied by Edward A. Pilnacek, engineering department, Surface Combustion Co., Long Island City, N. Y.

Conflict of Opinion as to Destroyers

Secretary Daniels and Shipping Board Do Not Agree—Another Serious Question Relates to Commandeering Vessels of Allies and Neutrals

WASHINGTON, Aug. 28.—The announcement on Aug. 24 of a huge new building program for the Emergency Fleet Corporation, involving in its entirety the construction of 1272 merchant vessels aggregating 7,968,000 gross tons and costing nearly \$2,000,000,000, has been followed by a sharp clash between the Shipping Board and Secretary of the Navy Daniels, who has issued orders to the leading shipyards of the country to abandon all merchant construction and to concentrate every facility upon the building of 150 new torpedo boat destroyers, to cost approximately \$200,000,000. The shipbuilders whose work for the Emergency Fleet Corporation has thus been suspended have protested vigorously to the Navy Department and to the Shipping Board, but Secretary Daniels shows no signs of yielding and the President may once again be required to step in and straighten out a tangle that threatens the big shipbuilding project designed to defeat the object of the submarine campaign.

The building program of the Shipping Board, set out in detail in a memorandum forwarded to the Secretary of the Treasury for transmission to Congress during the past week, calls for an appropriation of \$1,134,500,000, in addition to the \$800,000,000 heretofore authorized. Only \$915,000,000 of the total estimate will be required during the rest of the current fiscal year and it is probable that the remainder of the \$219,500,000 will be asked at the regular session of Congress which convenes in December.

According to the figures submitted by the Shipping Board, the appropriation heretofore made and that recommended will be spent as follows: Contracts already let, 433 ships of 1,919,200 tons, \$285,000,000; contracts ready to let, 452 ships of 2,968,000 tons, \$455,500,000; under negotiation, 237 ships of 1,281,000 tons, \$194,000,000; miscellaneous vessels, 150 ships of 1,800,000 tons, \$300,000,000; cost of constructing Government-owned fabricating shipyards, \$35,000,000. The commandeering program will cost \$515,000,000 and the purchase of ships approximately \$150,000,000 additional.

The contracts under consideration for some time for the construction of three Government-owned shipyards in which are to be built fabricated steel vessels will probably be signed almost immediately. The contracts go to the Submarine Boat Corporation for a plant at Newark, N. J., to the American International Corporation for a plant at Hog Island, Pa., and to the Merchants Shipbuilding Corporation for a plant at Chester, Pa. At the outset, the fleet corporation will contract for but 100 ships in these yards because it cannot legally anticipate its appropriations, but as soon as Congress has provided the money, orders will be given for 150 additional vessels, making a total of 250, the aggregate cost of which will be between \$300,000,000 and \$400,000,000.

Question as to Commandeering

Notwithstanding the announcement heretofore made that the British Government had acquiesced in the commandeering of merchant vessels building in American yards for the account of the government or of subjects of Great Britain, it is now stated that a formal protest has been filed with the State Department by the London Foreign Office, demanding that the United States release about 1,000,000 tons of ships building for British interests. The Secretary of State has entered into negotiations with the British Government in the hope of securing the reaffirmation of the assurance given by Mr. Balfour some weeks ago that Great Britain would interpose no objection to the commandeering of the vessels in question in view of the fact that they are to be used chiefly for the transportation of troops and supplies in aid of the Allies' forces. The members of the Shipping

Board are anxiously awaiting the outcome, as these vessels will probably be available much sooner than any contracted for by the board and the War Department is counting upon this tonnage for the movement of troops and supplies. Inasmuch as several neutral countries have also protested against the commandeering of vessels being built for their account in American yards, a decision as to the British ships may be of far-reaching consequence, although the suggestion has been made here that the United States may release the British ships upon condition that they be employed exclusively in the transatlantic trade, while at the same time retaining possession of all merchant vessels of neutral countries. Officials of the administration are not a unit as to the treatment of commandeered vessels and the issue is regarded as furnishing another problem for the President's determination.

Great Fleet Proposed

Secretary Daniels' program for the construction of a giant fleet of destroyers, to be the largest in any navy, would cut heavily into the Shipping Board's construction plans. A week ago, the Secretary conferred here with representatives of 25 of the leading shipyards and told them that the Government would insist upon the construction of 150 destroyers regardless of what steps might have been taken to carry out this plan. The shipbuilders frankly informed the Secretary that the Government would have to finance large extensions of the principal shipyards, as the companies could not undertake to provide the necessary facilities for the building of a type of vessel of which, presumably, very few would be ordered during a long period following the war. It was roughly estimated that if the Department's program were insisted upon, the special equipment for the construction of the proposed destroyers would cost as much as the vessels themselves, making a total outlay of approximately \$400,000,000. The Secretary was told that, in addition to financing these extensions, the Government must induce the Priority Board to give the shipyards precedence in obtaining materials, it must let the contracts on a cost-plus-profit basis, and it must condemn several large tracts of land where the new shipbuilding plants would be located. Secretary Daniels is understood to have informed the shipbuilders that the conditions stipulated by them would not deter the Department from proceeding with the project for doubling the number of destroyers now in the Navy or under construction.

Daniels Gives Order

Following the conference referred to, Secretary Daniels gave a formal order that half a dozen of the largest shipyards should turn all their energies toward the building of destroyers. This action evoked protests from many shipbuilders who have appealed to Secretary Daniels urging that his plan is not in the interest of the Government. It is pointed out that the need of merchant vessels is much more acute than that of destroyers and that unless the cargo vessels can be built rapidly in the best-equipped yards, the destroyers will have little to do in the way of convoying for protection against the submarines. It is further pointed out that, notwithstanding the effectiveness claimed for the destroyers as a weapon against the undersea boat, the British Government has added few warships of this type to its Navy, but, on the other hand, is bending every energy to secure the largest possible output of merchant ships. The effect of this policy after the war, it is contended, will be very disastrous to American interests. This Government will be obliged to take care of a large and wholly useless fleet of destroyers, while Great Britain will have built up a big merchant marine with which to monopolize the world's trade. Notwithstanding the forcible

character of these representations, Secretary Daniels does not appear to have been greatly impressed and there is no reason to believe that he will modify the orders already given.

A problem in connection with the construction of the proposed fleet of destroyers is engine production. Engine building companies have also received peremptory instructions from the Navy Department to increase their output of high power destroyer engines and, in certain cases, the orders given would involve an increase of several hundred per cent. It is probable that the Navy Department will be required to utilize a large amount of its available funds in financing extensions for the engine building plants as well as for shipyards, and before the Department's plans have been completely worked out it is believed its commitments on account of the new destroyers will amount to nearly half a billion dollars.

Shipowners Must Help

On the basis of reports received from the American fleet in European waters, the Navy Department has taken steps to compel American ship owners to co-operate in the task of combating the undersea boat. The War Risk Bureau, which insures vessels and their cargoes, and the United States Shipping Board have been asked by the Secretary of the Navy to compel vessel owners to make their ships as nearly nonsinkable as possible by dividing the cargo holds into smaller watertight compartments and by giving all newly launched vessels a speed of 15 or 16 knots. Experience has demonstrated that the division of cargo holds into several small compartments makes it practically impossible for a submarine to sink a vessel so constructed, even if two torpedoes strike the hull. The question of speed is also highly important, as carefully assembled statistics show that only a very small number of vessels having a speed in excess of 15 knots have been sunk. The Shipping Board is giving special attention to these recommendations and will probably incorporate them in many of its contracts and will also utilize them in completing vessels now on the stocks which have been commandeered under the board's recent order.

An Important Agreement

For the purpose of bringing about a rapid and peaceable adjustment of labor disputes in shipyards throughout the country, in order that the work of ship construction in public and private establishments may continue during the war without danger of serious interruption, an agreement has been entered into by representatives of the Navy Department, the Emergency Fleet Corporation and the American Federation of Labor. The agreement, which is signed by Acting Secretary of the Navy Roosevelt, Chairman Hurley of the United States Shipping Board, Admiral Capps, general manager of the Emergency Fleet Corporation, and a dozen high officials of the American Federation of Labor, calls for the immediate creation of an adjustment commission, which will consist of three, four or five members, according to the nature of the problem to be solved. The President has designated V. Everit Macy, of New York, president of the National Civic Federation, as chairman of the Commission, the Emergency Fleet Corporation will designate the second member, and Samuel Gompers, president of the American Federation of Labor, will name the third. Where Navy work is in whole or in part concerned, the Assistant Secretary of the Navy will sit as a member of the commission, and when trouble on a large scale is threatened in private yards, a representative of local labor and of the local shipping interests will sit as members of the commission, with full voting powers. In the event of a tie when Assistant Secretary Roosevelt's presence raises the membership to four, the deciding vote will be cast by the Secretary of War as chairman of the Council of National Defense.

The importance of this agreement to the shipbuilding program can hardly be overestimated. The Government and the labor representatives, parties thereto, believe that it will hasten the settlement of the controversy in the New York district, where more than 12,000 skilled workmen are now out on strike and much Government work is being held up. It is announced that through the efforts of President William H. Johnson of the Na-

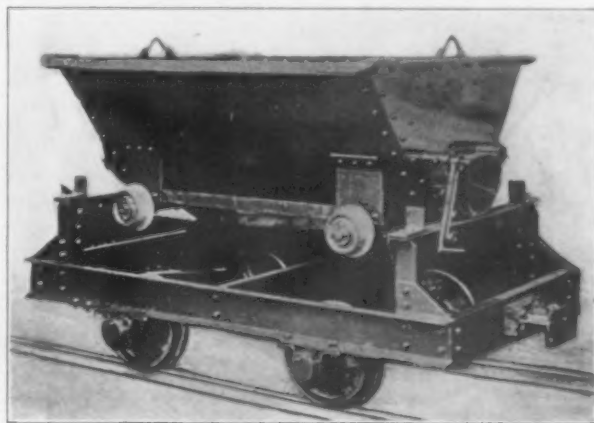
tional Association of Machinists and James O'Connell, president of the Metal Trade Workers Department of the American Federation of Labor, aided by Mr. Gompers, the workers who went out of the Pusey & Jones Shipbuilding Co.'s yards at Wilmington last week have returned to work to await the result of this effort at adjustment. A strike of more than 100,000 men on the Pacific Coast has been threatened since Aug. 14, but the men have been held back through the efforts of President J. A. Franklin of the International Brotherhood of Boilermakers and Iron Shipbuilders. If these men went out, work on more than 700,000 tons of steel and wooden ships would come to a standstill.

W. L. C.

Dump Car for Use in Limited Spaces

The Easton Car & Construction Co., Easton, Pa., has developed an interesting type of dump car for use on industrial railroads. The special features of the car are the use of two sets of wheels and the crane lifting rings attached to the top of the body at each end.

This arrangement makes it possible for the body of the car to be lifted off the frame and set down on another track of narrow gage. It can be then run on the



The Body of a Recently Developed Dump Car Can Be Lifted from the Truck and Run on a Set of Auxiliary Wheels into a Limited Space for Loading

auxiliary wheels under a hopper for loading where the headroom is limited or the space is so narrow that the whole car cannot enter. After the car has been loaded it can be pulled out and hoisted on the under frame by the crane. After the dump body has been placed on the frame the whole car is moved to the dump in the regular way. The car is constructed of metal throughout and is designed for operation on the narrow gage industrial railroads found in so many plants.

Practical Course for Foundrymen

Due to conditions existing in manufacturing plants all over the country, and with which industrial managers are very familiar, there is at present, and has been almost since the time the war broke out, a great demand for trained foundrymen to fill responsible positions. At this time, opportunities are numerous and salaries are attractive not only for men who have a practical knowledge of the foundry business, but also for those whose services would be valuable by taking a course of specific training. To insure itself of as large a supply of such men as possible, the Westinghouse Electric & Mfg. Co., East Pittsburgh, has recently established a course in foundry work for those of its employees between the ages of 17 and 31 years who have completed at least the eighth grade of public school or its equivalent. The shop courses include the following: Bench and floor molding, machine molding, car making, tempering of sand, cupola operation, mixing of alloys, and cost of calculating. Classroom instructions will be given during the course on blue print reading, mechanical drawing, shop problems and metallurgy, particular attention being given to the alloys of iron and copper. The idea of the company is to give those desiring it a thorough all-round knowledge of this very important phase of its work.

Hearings on Iron and Steel Control Bill

Pomerene Measure Aims at Government Regulation of Prices and Sale—Consumers to Give Testimony

WASHINGTON, Aug. 28.—Senator Pomerene, author of the comprehensive measure empowering the President to regulate the sale and distribution of iron and steel not only to the Government and the Allies but to all dealers and consumers, domestic or foreign, a synopsis of which appeared in *THE IRON AGE* of Aug. 16, is planning to secure hearings on his measure before the Senate Committee on Interstate Commerce to begin soon after the pending war revenue bill is disposed of. Senator Newlands, chairman of the committee, is an avowed advocate of governmental price fixing of steel for the private consumer and several other members of the committee favor the Pomerene bill and will assist in bringing about the desired hearings. The taking of testimony on the measure will be limited to a reasonable period, however, as it is Senator Pomerene's desire that the bill should be reported to the Senate at the earliest practicable date.

In furtherance of his plan to secure hearings on the steel price-fixing bill Senator Pomerene has already secured the co-operation of the Federal Trade Commission which is compiling data for use in committee and on the floor. It is probable that the commission will assist Senator Pomerene in preparing a list of witnesses which will include representative manufacturers who are obliged to buy their raw materials from the leading producers of iron and steel. The hearings will be designed to develop many facts in connection with present conditions which have not been referred to in the public discussion of price fixing for the Government and the Allies, and some highly interesting developments may be looked for in this connection. It will be the purpose of the author of the pending bill to determine by a thorough investigation just what class of manufacturers in the iron and steel industries have been reaping the big profits currently reported, and the inquiry will follow production through all processes back to the ore in the ground.

Abnormal Conditions in Iron and Steel

"I have always been opposed to governmental price fixing or to unnecessary governmental interference of any kind with the private business," said Senator Pomerene in speaking of his bill to the correspondent of *THE IRON AGE*. "Under normal conditions I should not think of advocating such a measure as I have introduced for the control of the iron and steel industry. But we are now facing two facts which must be met squarely and without evasion. One of them is that the business of the entire country is in a highly abnormal condition as the result of the war, and the other is that certain men are deliberately seeking to take advantage of the necessities of the Government and of the people. In such a crisis I am for governmental price fixing or any other form of control that will enable the Government and the people to supply their every day needs at prices representing only reasonable profits to the producers.

"I yield to no man in my desire for the success and prosperity of the iron and steel industry and I have the greatest possible admiration for the brains and skill of the men who have developed this industry in the United States to its present superb proportions. But the so-called prosperity of the iron and steel industry to-day is a one-sided affair. It is the prosperity of a few big concerns engaged largely with the basic products of the industry and it is not the general prosperity of the thousands of men who must buy their materials from these big manufacturers.

Reaction from High Levels Certain

"One has only to look at a current price list of iron and steel commodities to realize that present conditions

are wellnigh impossible and that their maintenance ought not to be desired by the very men who are responsible for the present extortionate prices. The leading producers in the industry, who are chiefly responsible for the present condition of the market, are riding for a fall, and when one considers the shrewdness and great business ability of these men it is a matter of surprise to me that they cannot see it. Yet this whole subject has been under discussion in and out of Congress for months and so far as I am able to see now not a move has been made to remedy it; on the other hand, it grows more critical every day with the price of basic products climbing so rapidly that consumers of iron and steel must be at their wits' ends to know what to do. The price of pig iron today is incredible and no one knows what it will be to-morrow. Nothing could be more unhealthy than such a status, and as surely as the sun rises there will be a reaction whether Congress interferes or not.

"I strongly favored including iron and steel in the list of commodities to be regulated by the President under the Lever food, feed and fuel control bill, but after the Senate committee had put them in other articles were added and the measure was finally so loaded down that its passage became problematical, and in common with many other Senators I felt that iron and steel and other metals might well be omitted from the Lever measure and provided for in such a separate bill as I have introduced. The Lever bill has become a law and already the President, by the exercise of the authority bestowed upon him by the act, has reduced the price of coal, both bituminous and anthracite, all along the line, and consumers will soon feel the benefit of the action taken.

"Certain of my colleagues, who are ever mindful of the interests of the farmer, succeeded in having agricultural implements left within the control provision of the Lever bill but apparently they overlooked the fact that manufacturers of these implements must buy their steel and pay extortionate prices for it. This only illustrates what a universal basic product steel is and how necessary it is that its price shall be kept within reason, by governmental control if it cannot otherwise be done, in order that thousands of other industries may prosper and the consumer be protected against robbery.

Iron and Steel Labor Conditions

"To my mind the labor situation in the iron and steel industry is such as to warn every experienced operator that there is grave danger ahead. The well authenticated current reports of profits made in the industry naturally inflame the minds of the workmen employed in it with the result that demands are being made for unheard of wage scales. Where these demands are not granted there is always danger of strikes and where they are the workmen are tempted to expand their scale of living and to develop surroundings that are absolutely artificial.

"What will be the end of this movement so far as labor is concerned? When the war is over there is certain to be a shrinkage appalling to contemplate. The country will be fortunate, indeed, if it escapes a great financial crash followed by a long period of depression. Labor, which is always the last to feel the benefits of higher prices, will be the last to yield to the downward tendency, and the industries of the country will be torn by labor troubles, for it is not to be expected that workmen will abandon without a fierce struggle a scale of living to which they have become accustomed.

"I am very hopeful that the Committee on Interstate Commerce will begin hearings on my bill as soon as the revenue measure is out of the way if not before. There

is a strong disposition in Congress to hasten action on all important legislation and I do not think it will take very long to dispose of my measure either in committee or in the Senate."

Power to Examine Consumers' Books

A feature of the Pomerene bill that is attracting considerable attention in the Senate is the provision which authorizes the Federal Trade Commission to examine not only the books, correspondence and other records of concerns engaged in the mining, production, sale or distribution of iron or steel, but also the "books, correspondence, records and papers of any person applying for the purchase of iron ore, iron, steel or their products." While the Lever act and other statutes which recognize the Federal Trade Commission clothe that body with authority to investigate the affairs of producers, the Pomerene bill is the first measure to empower the commission to inquire into the affairs of consumers. The object of this provision is far-reaching. Among other things, it would enable the governmental agency controlling the distribution of basic products of iron and steel to inquire into the good faith of every consumer seeking to buy materials from the Government. Speculation could be checked and hoarding of standard commodities in anticipation of higher prices could be wholly prevented. Consumers wishing to take advantage of prices fixed by the President's representative would be obliged to demonstrate their needs and the supplies conceded them would be limited to actual requirements. The data secured by the Federal Trade Commission from such investigations of consumers' records would also be useful in connection with any prorating of output that might be necessary in temporary emergencies.

W. L. C.

FOUNDRYMEN'S CONVENTION

Large Number of Reservations for Space—Program of Papers and Entertainment

Nearly 150 manufacturers of foundry equipment and supplies have made reservations amounting to about 45,000 sq. ft. of space to make displays in connection with the meeting of the American Foundrymen's Association and the American Institute of Metals at Boston the week of Sept. 24. The success of the exhibit feature of the convention is assured and an extended program of papers has been prepared. The program of the convention in full is as follows:

MONDAY, SEPT. 24

10 a. m.—Registration, Mechanics Building.
1 p. m.—Opening of exhibition, Mechanics Building.
3 p. m.—Joint opening session, American Foundrymen's Association and American Institute of Metals, Paul Revere Hall, Mechanics Building.
Address of welcome by Hon. James M. Curley, Mayor of the city of Boston.
Response to the address of welcome, by R. A. Bull, Duquesne Steel Foundry Co., Coreopolis, Pa.
Annual address by J. P. Pero, Missouri Malleable Iron Co., East St. Louis, Ill., president, American Foundrymen's Association.
Annual address by Jesse L. Jones, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., president, American Institute of Metals.
Report of executive board of the American Foundrymen's Association.
Report of the secretary-treasurer of the American Foundrymen's Association, by A. O. Backert, Cleveland.
"Fire Prevention in Large Industrial Establishments," by C. Johnson, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
Appointment of nominating committee and committee on resolutions.

TUESDAY, SEPT. 25, 10 A. M., PAUL REVERE HALL

"The Foundry from the Viewpoint of the Sales Engineer," by H. R. Atwater, Osborn Mfg. Co., Cleveland.
"The Relationship of the Engineering Department to the Pattern Shop and Foundry," by F. J. McGrall, Struthers-Wells Co., Warren, Pa.
"How Character Analysis Solves the Men Problem," by William Judson Kibby, employment specialist, Cleveland.
Report of A. F. A. Committee Advisory to the United

States Bureau of Standards, by Richard Moldenke, chairman, Watchung, N. J.

"Efficiency in the Foundry," by James A. Fitzgerald, Reno, Pa.

"Co-operative Shop Training," by W. B. Hunter, Fitchburg High School, Fitchburg, Mass.

1.30 p. m.—Boat ride in and about Boston Harbor. Luncheon will be served on board.

WEDNESDAY, SEPT. 26, 10 A. M., PAUL REVERE HALL

"Improving the Relationship Between Employer and Employee," by J. F. Kent, American Cast Iron Pipe Co., Birmingham, Ala.

Report of A. F. A. Committee on Safety, Sanitation and Fire Prevention, by Victor T. Noonan, chairman Industrial Commission of Ohio, Columbus, O.

Report of A. F. A. Committee on Foundry Costs, by B. D. Fuller, chairman, Westinghouse Electric & Mfg. Co., Cleveland.

Report of A. F. A. Representatives on the Conference Board on Training of Apprentices, by Frank M. Leavitt, chairman, University of Illinois, Chicago.

"The Labor Situation as Relating to Co-operation Between the Employer and Employee," by G. E. MacIwain, Babson's Statistical Organization, Wellesley, Mass.

"Micro-Metallography for the Foundry," by Robert J. Anderson, Cleveland Metal Products Co., Cleveland.

Report of nominating committee and election of directors.

MALLEABLE SESSION, 10 A. M., MECHANICS BUILDING

"The Theory of the Modern Waste-Heat Boiler and Possible Application of Such Boilers to the Malleable Melting Furnace," by A. D. Pratt, The Babcock & Wilcox Co., New York.

"Application of Waste-Heat Boilers to the Malleable Melting Furnace," by C. D. Townsend, Danville Malleable Iron Co., Danville, Ill.

"Application of Pulverized Coal to the Air Furnace," by W. R. Bean, Naugatuck Malleable Iron Works, Naugatuck, Conn.

"The Application of Pulverized Coal to Malleable Melting Furnaces," by Joseph Harrington, advisory engineer, Chicago.

"How Malleable Iron Has Improved," by Enrique Touceda, consulting engineer, Albany, N. Y.

"Troubles Encountered in Machining Malleable Iron: Causes and Remedies," by A. T. Jeffery, Dayton Malleable Iron Co., Dayton, O.

"Comparative Carbon Losses in Malleable Iron Annealing by Muffle and Pot Oven Methods," by Joseph B. Deisher, the T. H. Symington Co., Rochester, N. Y.

"The Effect of Iron Oxide in Molding Sand," by W. R. Bean, Naugatuck Malleable Iron Works, Naugatuck, Conn.

3 p. m.—Baseball game, Fenway Park, Boston and Cleveland, American League teams.

8.15 p. m.—Theatre party.

GRAY IRON SESSION, THURSDAY, SEPT. 27, 10 A. M., PAUL REVERE HALL

"Note on Fine Molding Sands," by C. P. Karr, associate physicist, United States Bureau of Standards, Washington, D. C.

Report of A. F. A. Committee on General Specifications for Gray Iron Castings," by W. P. Putnam, chairman, Detroit Testing Laboratory, Detroit.

"Briquetting Foundry Borings," by A. L. Stillman, General Briquetting Co., New York.

"Cast-Iron Shells in Permanent Molds," by Edgar Allen Custer, consulting engineer, Philadelphia.

"The Seasoning of Gray Iron Castings," by L. M. Sherwin, Brown & Sharpe Mfg. Co., Providence, R. I.

"Factors in the Economical Production of Small Cores in Large Quantities," by R. E. Kennedy, University of Illinois, Urbana, Ill.

"Modern Centrifugal Cupola Blowers," by J. W. Shugg, General Electric Co., Schenectady, N. Y.

"The Effect of High Sulphur in Gray Iron Castings," by T. Mauland, International Harvester Co., Chicago.

STEEL SESSION, 10 A. M., MECHANICS BUILDING

"Molding and Casting Large Slag Pots," by C. J. McMahon, Illinois Steel Co., Chicago.

"A Description of a Small Open-Hearth Furnace," by David McLain, McLain's System, Milwaukee.

"Small Steel Castings for Ordnance Purposes," by Major C. M. Wesson, Watertown Arsenal, Watertown, Mass.

"A New System of Burning Crude Oil," by W. A. Janssen, chairman, Davenport, Iowa.

"The Use of Vanadium in Steel Castings," by J. Lloyd Uhler, Union Steel Castings Co., Pittsburgh.

Report of A. F. A. Committee on Steel Foundry Standards, by W. A. Janssen, chairman, Davenport, Iowa.

12 a. m.—Luncheon for the ladies, followed by an automobile trip.

12.30 p. m.—Visit to the West Lynn plant of the General Electric Co. Luncheon will be served at the works.

7 p. m.—Annual banquet, Copley-Plaza Hotel.

FRIDAY, SEPT. 28, 10 A. M., PAUL REVERE HALL

"Solution of Foundry Transportation and Conveying Problems," by Robert E. Newcomb, Deane Works, Worthington Pump & Machinery Corp., Holyoke, Mass.

"Sand-Blasting in the Foundry," by H. L. Wadsworth, Sand Mixing Machine Co., Cleveland.

"Results of Tests in Blending and Mixing Sand by Means of Mullers," by R. F. Harrington, Hunt-Spiller Mfg. Corp., Boston.

"Factors Contributing to the Economical Use of Grinding Wheels in the Foundry," by Wallace T. Montague, Norton Co., Worcester, Mass.

"Refractory Materials Employed in the Metallurgical Industries," by H. C. Arnold, University of Illinois, Urbana, Ill.

STEEL SESSION, 10 A. M., MECHANICS BUILDING

"Electric Furnace Design," by John A. Crowley, John A. Crowley Co., Detroit.

"Recent Developments in the Application of the Electric Furnace to the Melting Problem," by Douglas Walker, Booth-Hall Co., Chicago.

"Comparison of Electric Furnace and Steel Converter for the Manufacture of Small Steel Castings," by C. R. Mesinger, Sivyer Steel Casting Co., Milwaukee.

"The Electric Furnace from the Central Station Standpoint," by E. L. Crosby, Detroit Edison Co., Detroit.

"The Electric Furnace in the Iron and Steel Foundry," by Max Trembour, metallurgical engineer, Ludlum Steel Co., Watervliet, N. Y.

Plant visitation.

American Institute of Metals

MONDAY, SEPT. 24.

10 a. m.—Registration, Mechanics Building.

2 p. m.—Joint opening session American Foundrymen's Association and American Institute of Metals, Paul Revere Hall, Mechanics Building.

TUESDAY, SEPT. 25, 9.30 A. M., HOTEL SOMERSET

Melting and Casting Nonferrous Metals

"Raw Materials Used for Crucibles," by Prof. A. V. Bleininger, Bureau of Standards, Washington, D. C.

"Melting Yellow Brass in New Form of Induction Furnace," by G. H. Clamer, Ajax Metal Co., Philadelphia.

"Casting Bearings in Sand and Metal Molds," by R. R. Clarke, Pennsylvania Lines West of Pittsburgh, Pittsburgh.

"Negative Experiments on Waste Core Sand," by Dr. H. W. Gillett, Bureau of Mines, Ithaca, N. Y.

"The Crucible Situation," by M. McNaughton, Jos. Dixon Crucible Co., Jersey City, N. J.

"The Electric Furnace and Nonferrous Metals," by Dwight D. Miller, the Society for Electrical Development, New York City.

"My Experience with Metal Melting Furnace," by W. H. Parry, National Meter Co., Brooklyn, N. Y.

"The Briquetting of Nonferrous Light Metal Scrap," by A. L. Stillman, General Briquetting Co., New York.

1.30 p. m.—Boat ride in and about Boston Harbor.

Luncheon will be served on board.

WEDNESDAY, SEPT. 26, 9.30 A. M., HOTEL SOMERSET

Uses of Nonferrous Metals for Munitions, Etc.

"The Present Status of Tin Fusible Plug Manufacture and Properties," by Dr. Geo. K. Burgess, Bureau of Standards, Washington.

"Stellite," by Elwood Haynes, Haynes Stellite Works, Kokomo, Ind.

"The Use of Die Castings in Munitions," by Chas. Pack, Doehler Die Casting Co., Brooklyn, N. Y.

"Shrapnel Bullets," by Harold J. Roast, the Jas. Robertson Co., Ltd., Montreal, P. Q.

"A Few Points on Alloy Patents," by Wm. J. Rich, Patent Office, Washington.

Address by a representative of the United States Tariff Commission.

"The Use of Bronzes in Railroad Turntables and Movable Bridges," by O. E. Selby, Big Four Railroad, Cincinnati.

"Recent Industrial Uses of Aluminum," by F. G. Shull, Aluminum Co. of America, Boston.

"The Consumption of Copper and Its Varied Uses," by H. D. Hawks, United Metals Selling Co., New York.

3 p. m.—Baseball game, Fenway Park, Boston and Cleveland American League teams.

8.15 p. m.—Theatre party.

THURSDAY, SEPT. 27, 9.30 A. M., HOTEL SOMERSET

Testing of Nonferrous Metals

"Comparative Tests on Test Bars and Actual Castings," by W. M. Corse, Titanium Bronze Co., Niagara Falls, N. Y.

"Analysis of Babbitts and Brasses," by E. W. Hagmaier, Buffalo.

"Standard Test Bars of 88-10-2 and 88-8-4, Being the Result of Co-operation Work of Six Foundries; a New Series

of Tests," by C. P. Karr, Bureau of Standards, Washington, D. C.

"The Expansion Coefficients of Alpha and Beta Brass" and "The Corrosion of Manganese Bronze Under Stress," by Dr. Paul D. Merica, Bureau of Standards, Washington.

"Corrosion of Brasses of the Muntz Metal Type," by H. S. Rawdon, Bureau of Standards, Washington.

Address by Richard C. Maclaurin, President, League to Enforce Peace.

"The School End of the Job in Training Foundrymen," by Dean C. B. Connelley, Carnegie Institute of Technology, Pittsburgh.

"The Flux and Cleaner Question of Brass," by E. D. Frohman, S. Obermayer Co., Pittsburgh.

"Pyrometers—Their Construction and Application," by John P. Goheen, Brown Instrument Co., Philadelphia.

"Electrically-heated Core Ovens," by Dr. C. F. Hirshfeld, Edison Illuminating Co., Detroit.

"Brass Rolling Mill Alloys," by Roy A. Wood, Cheshire, Conn.

12 m.—Luncheon for the ladies, followed by an automobile sightseeing tour.

12.30 p. m.—Visit to the West Lynn plant of the General Electric Co. Luncheon will be served at the works.

7 p. m.—Annual banquet, Copley-Plaza Hotel.

FRIDAY, SEPT. 28, 9.30 A. M., HOTEL SOMERSET

Metallurgy and Metallography

"The Electrolytic Production of Antimony," by Prof. D. J. Demorest, Ohio State University, Columbus.

"The Electrical Properties of Some High Resistance Alloys," by Prof. M. A. Hunter, Rensselaer Polytechnic Institute, and F. M. Sebast, Troy, N. Y.

"The Amorphous Theory in Metals," by Zay Jeffries, Aluminum Castings Co., Cleveland.

"The Volatility of Zinc and Cadmium," by John Johnston and Edward Schramm, American Zinc, Lead & Smelting Co., St. Louis.

"Surface Tension and Deoxidizing of Metals," by W. J. Knox, Metals Deoxidizing & Refining Co., New York.

"Antimony—Its Metallurgy and Uses," by K. C. Li, Wah Chang Mining & Smelting Co., Inc., New York.

"Development and Reabsorption of the Beta Constituent in Alloys Which Are Normally of the Alpha Type," by Prof. C. H. Mathewson, department of mining and metallurgy, Yale University, and Philip Davidson, New Haven, Conn.

"The Swelling of Zinc Base Die Castings," by H. M. Williams, National Cash Register Co., Dayton, O.

Plant visitation.

Chicago Men Buy Control

H. A. Stocker and W. N. Rumeley, well-known business men of Chicago, have acquired a controlling interest in the Long & Allstatter Co., Hamilton, Ohio. Fred. C. Avery, also of Chicago, has been placed in charge of the plant as general manager.

The Long & Allstatter Co. was established in 1856 and was incorporated in 1878. At first, considerable attention was paid to the manufacture of farming implements, but later the building of heavy punching, shearing and forging machines was undertaken, to which line all of the company's energies will be directed exclusively in the future. Machines weighing from 1000 to 300,000 lb. are now turned out. Within the past week, the company has acquired the patents, patterns and machinery of the alligator shear department of the Thomas Carlin's Sons Co., Pittsburgh, which will be removed to Hamilton at once, thus adding another type of shear to those already made.

It is noteworthy that the company has been uniformly able to retain its old employees, and one molder now in its employ has seen over 50 years' service.

The Lackawanna Bridge Co., 2 Rector Street, New York, will build a two-story hotel and restaurant in the meadow district, Newark, N. J., to cost \$30,000. The structure will be used by employees of the Submarine Boat Co., Bayonne, N. J., in connection with its proposed new boat works to be constructed on property recently acquired in this section.

The first outing and picnic of the Acme Steel Goods Co., Chicago, will be held Sept. 1, at Glenwood Park, Ill., a beautiful spot on the Fox River, reached by an electric traction line. Special music, athletic games and other attractions have been arranged.



Low Phosphorus Pig Iron and Wash Metal Made from Scrap Steel. Slabs in the last row are the wash metal

High Grade Pig Iron from Scrap Steel

Synthetic Conversion of Old Material Back
Into Iron by an Electric Process — De-
scription of the Ludlum Electric Furnace

BY EDWIN F. CONE

A METALLURGICAL operation of distinct novelty and importance is being carried out commercially in a large electric steel plant in the East, in the conversion of ordinary scrap steel into a high-grade low-phosphorus pig iron. The process is the synthetic reconversion of steel into the original raw material. Not only is pig iron being produced in large quantities but wash metal and iron and steel castings are being made in the same furnaces. The pig iron is being sold in the open market as a competitor with regular low-phosphorous blast-furnace iron, the wash metal goes to crucible steel makers and the iron castings are sold to nearby users or used by the company itself in its rolling mill or for other purposes.

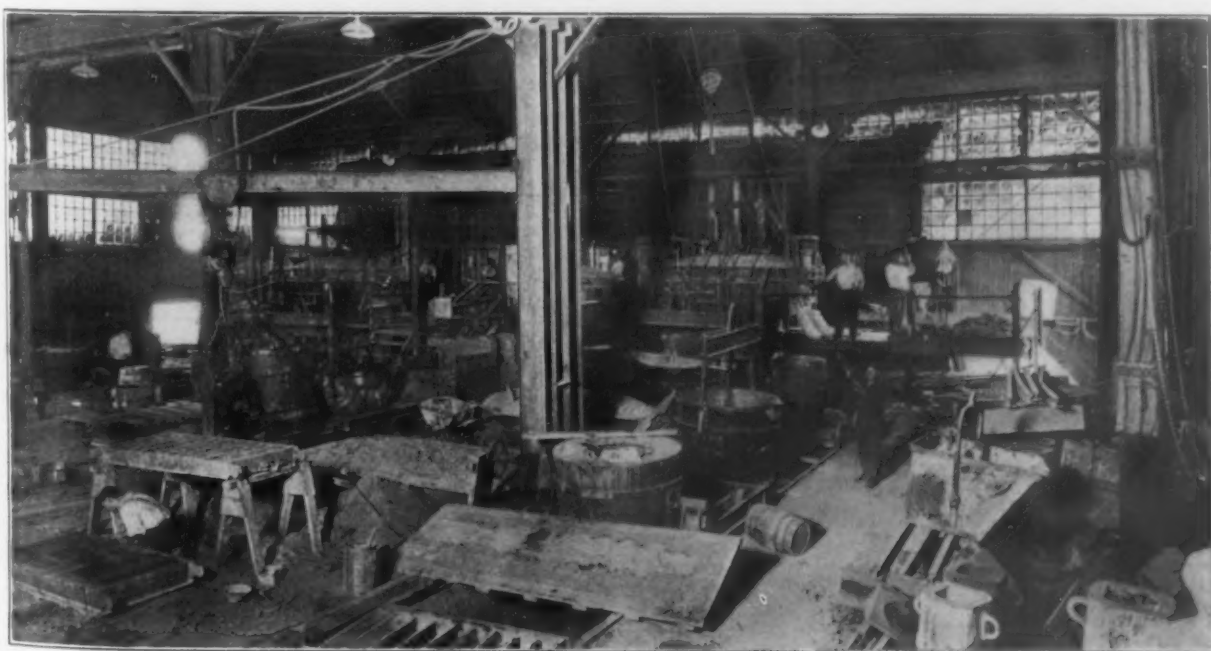
The idea is not a new one, but this is the first record of its commercial execution in the United States. Late in 1912, Horace W. Lash, of the Garrett-Cromwell Engineering Co., Cleveland, organized a company for the purpose of converting scrap steel and iron into pig iron in an electric furnace

on the Pacific Coast. Announcement was made in THE IRON AGE, Jan. 30, 1913, of the formation by Mr. Lash of the Western Iron Co. of San Francisco. Pig iron being very expensive in that section and the fact that it could be made by this process without the use of coke, charcoal or coal, which are also scarce there, were the impelling reasons. It is not known that the company carried out its plans.

It is also understood that Robert Trumbull, an engineer at one time identified with Heroult in his efforts to introduce his electric furnace in America, is now producing pig iron from scrap in an electric furnace in Canada.

The Eastern company that has been successfully operating as noted above is known as the Sweetser-Bainbridge Metal Alloy Corporation of Watervliet, N. Y. For several months it has been producing the products named in the Ludlum electric furnace. About 50 tons per day is the present output from two 5-ton furnaces.

The new company, organized a few months ago,



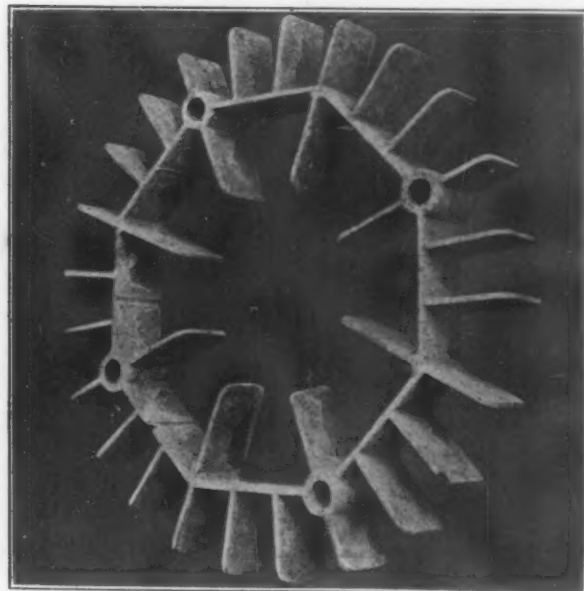
Two Ludlum 5-Ton Electric Furnaces Making Pig Iron, Wash Metal and Iron or Steel Castings from Scrap Steel. This is the old portion of the Ludlum Steel Co.'s plant converted into a foundry and casting shop for the Sweetser-Bainbridge Metal Alloy Corporation



Pig Iron from Scrap Steel and the Iron Molds into Which the Metal Runs from the Electric Furnaces. The molds are halves of discarded ingot molds



Gray Iron Castings from Scrap Steel. A rolling mill wabblor lies near the track



Gray Iron Core Arbor from Scrap Steel. Metal section about half inch

leased from the Ludlum Steel Co. at Watervliet the older portion of its plant in which there were three 5-ton Ludlum electric furnaces. The Ludlum company is operating at full capacity its new electric steel plant and rolling mill, described in THE IRON AGE, April 26, 1917, and was able to release the old capacity to the new company. This older part has been converted into a modern foundry and pig-iron casting plant, as shown by one of the illustrations.

Metallurgy of the Process

There is no secret about the process. It is made possible by the unusual metallurgical feats which the electric furnace can perform. The actual process used by the company is not revealed. In general, however, ordinary scrap steel of any grade is introduced in the furnace cold. The process is basic. The material is melted and refined if necessary, depending on the quality of the scrap and the degree of refinement desired in the product. These considerations also decidedly influence the cost. After the desired refinement is reached, the slag is removed. The necessary amount of ferrosilicon and ferromanganese is added to bring the iron to the composition desired and then the carbon addition in the form of fine coke is easily absorbed by the hot metal.

Five or six 5-ton heats per day in each of two 5-ton furnaces are being regularly produced by the above or a similar process. There is no difficulty in its execution and no question as to the quality of the products. In respect to sulphur and phosphorus, they equal if they do not surpass any blast-furnace or cupola product, as shown by the analyses that follow. Regulation of the temperature or the composition is apparently simple, and a range from high-grade low-phosphorus iron and wash metal down to the high-phosphorus foundry and other irons is claimed possible, and probably is.

The graphitic carbon content is regulated by the introduction of varying percentages of silicon. The manganese can be made anything desired, and the total carbon is not difficult to regulate. The amount of phosphorus and sulphur is readily placed at almost any percentage desired, depending on the composition of the scrap charged and the degree of refinement before conversion into pig iron or iron castings.

Composition and Properties of the Iron

The commercial possibilities of the new process are shown, so far as the composition of the products is concerned, by the following analyses made in ordinary operation:

Composition of Pig Iron Made from Scrap Steel

	Sample No. 1 Per Cent	Sample No. 2 Per Cent	Sample No. 3 Per Cent
Total carbon.....	3.60	3.73	3.38
Manganese.....	0.41	0.35	0.31
Silicon.....	1.77	1.52	1.15
Sulphur.....	0.007	0.008	0.028
Phosphorus.....	0.019	0.030	0.032

The average phosphorus content of this iron so far made has averaged 0.023 per cent. The graphitic carbon can be made anything desired or as high as 3.50 per cent, depending on silicon content.

Composition of Wash Metal Made from Scrap Steel

	Sample No. 1 Per Cent	Sample No. 2 Per Cent
Total carbon.....	3.55	3.83
Graphite carbon.....	None	None
Manganese.....	0.37	0.32
Silicon.....	0.20	0.14
Sulphur.....	0.020	0.012
Phosphorus.....	0.014	0.018

Composition of Cast-Iron Castings Made from Scrap Steel

	Sample No. 1 Per Cent	Sample No. 2 Per Cent
Total carbon.....	3.36	3.63
Graphite carbon.....	3.08
Manganese.....	0.36	0.31
Silicon.....	1.30	1.15
Sulphur.....	0.019	0.014
Phosphorus.....	0.024	0.018

These analyses show how varied compositions can be controlled. The low silicon content of the wash metal permits the carbon to remain almost entirely in the combined state.

The pig iron that has been made is reported to be very tough and strong. As to cast iron in the form of castings, the experience of the Ludlum Steel Co. is cited. Cast-iron wobblers, for use in the company's rolling mill, which were purchased in the open market, were breaking at the rate of 10 or 12 per day. Wobblers from iron made in the electric furnace have been in use for two or three months without a case of breakage. The company also made the breaking boxes on the mill of electric cast iron. These should break easily when performing their normal function, but when made of this iron they were found to be entirely too tough and their section had to be reduced considerably.

It is believed that a partial explanation of these qualities may be found in the crystalline structure of the iron as well as its greater purity compared with cupola iron. Contrary to cupola practice, in which the sulphur rises with each remelting of scrap, the sulphur is lowered with each remelting in the electric process. In making steel castings the conversion loss is put at 5 per cent.

The Question of Cost

The cost of production is one of the vital points in the process. So long as low-phosphorus pig iron is selling at its present war price of \$90 per ton or over there can be no question as to the liberal profits obtainable. Whether in normal times such a method of making this grade or any other grade of pig iron or castings is economically possible depends on several important factors. Primary among these are the consumption of electricity and the grade of scrap used. If a relatively pure scrap steel is the starting point, practically no refinement is necessary and the kilowatt-hour consumption is at a minimum. The converse is true if poorer scrap requiring more refinement is used. The matter of other materials and the question of labor and electrode charges are fairly constant in all cases.

Owing to the fact that the Sweetser-Bambridge Company has only been operating this process for a short time and under more or less imperfect conditions, actual data as to cost of production are not available at present. Extensive experiments are being made to determine costs under various conditions and at various stages of the process and these will be available in the near future.

It is the estimate of the metallurgists of the company that the kilowatt-hour consumption of electricity per ton of pig iron produced can be brought under 400 kw-hr. depending upon transformer capacity, grade of scrap used and the product desired. Electrode consumption and refractory renewals, it is said, are low, even under present abnormal costs of these materials.

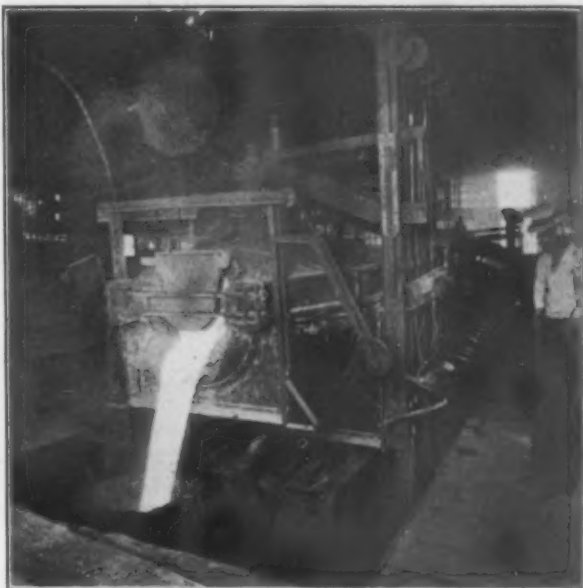
One melter and four men for each shift of eight hours are employed to operate the two furnaces which in 24 hours are reported to produce 5 tons each or 50 tons in all. With cheaper iron and steel scrap in normal times it is claimed the total cost would be lower.

The furnace in which the foregoing products are being made has come to be known as the Ludlum furnace. Besides the two now making pig iron, etc., there are two 10-ton furnaces producing high-grade special and tool steels in the new plant of the Ludlum Steel Co. The company is a large producer of the new chromium permanent magnet steel and also makes chromium roller bearing steels.

Considerable interest has always been attached



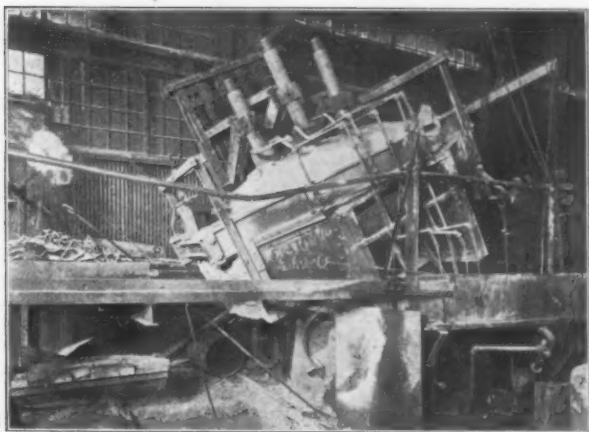
Pouring Low Phosphorus Pig Iron from a 5-Ton Ludlum Electric Furnace. The iron runs through a ladle and in a trough to the pig beds



Pouring Cast Iron for Castings from a 5-Ton Ludlum Electric Furnace



Pouring High-Speed Steel from a 10-Ton Ludlum Furnace for the Ludlum Steel Co.



A 5-Ton Ludlum Furnace in the Tilting Position

to this special type of furnace. The Ludlum Steel Co. especially emphasizes the fact that it has been solely developed as a tool-steel making furnace. The steps leading to an abandonment of the crucible process and the various stages in the perfection of the present type, involving the trial of five different types, were recounted in THE IRON AGE article already mentioned. The present furnace is largely the work of M. R. Trembour, one of the metallurgical engineers of the company.

The Ludlum Furnace and Its Claims

Simplicity is one of the features of the Ludlum furnace. Its elliptical shape is a departure. Its low roof gives an approach to the shape of the average crucible. The shell, built of structural steel, is oblong with an arc-shaped bottom. It tilts lengthwise by means of special motors, as shown by the illustrations. The three electrodes are in a row extending through the roof. Some of the claims made are given as follows:

There are but two doors, one at each end of the elliptical section, minimizing the inlet of cold air. One door acts, also, as a pouring spout. The two outer electrodes are not far from the doors,

tending to offset any cooling effect when the doors are open.

It has no straight or side walls and no unsupported arch, lessening the liability to erosion from reflected heat or the tendency to weaken when brick are burned out.

There being no angles or corners and the metal and slag being in a direct line with the doors, the removal of all slag is facilitated.

Uniform heat in all parts of the furnace results from the three electrodes being in a row, made possible by the elliptical shape. They are practically equidistant from all sides, eliminating uneven burning of the lining.

The cradle shape permits a low arch at the top, reducing the amount of waste heat and increasing thermal efficiency.

The time of relining is brief. On account of the shape, it is found possible to reline a 5-ton furnace in 23 hr., counting from the time the furnace is tapped until ready to recharge.

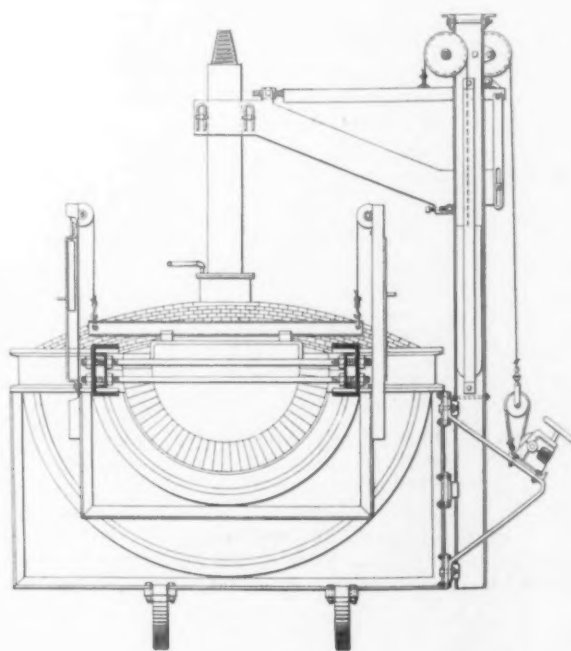
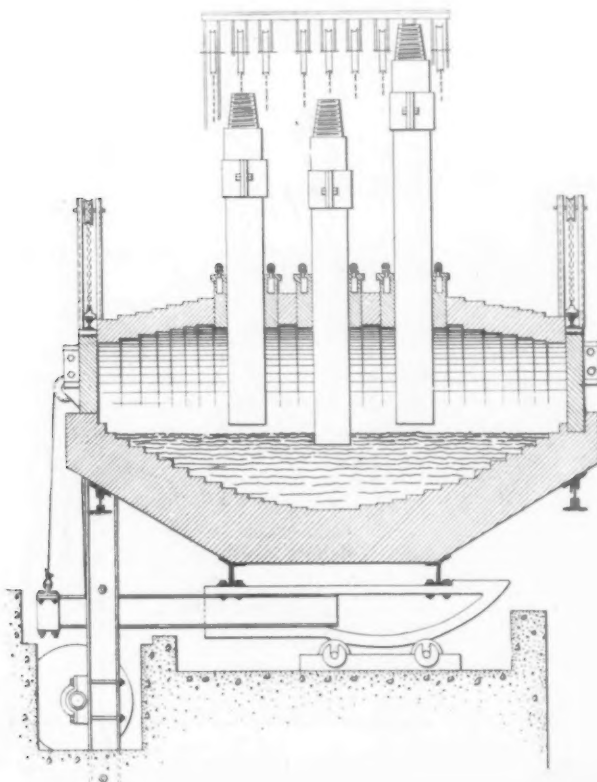
The lining of the bottom is simple. Two layers of magnesite brick are laid in the bowl shape, cemented together with magnesite cement made of crushed worn-out brick, making the lining over 9 in. thick. An average of 96 heats per lining is maintained when making steel. From present indications the life of a lining when making pig iron is much greater. In one furnace 138 heats have already been made on one lining which still appears to be as good as new. It is estimated that 200 to 300 heats can still be made on it.

The roof lining is made of Woodland clay brick and each roof is reported to last about 90 heats. A roof can be readily replaced. One is shown in one of the illustrations.

Electrode consumption is proportional, among other things, to the length protruding into the furnace and the amount of air. The shape of this furnace is designed to minimize these two conditions.

The kilowatt-volt-ampere (kva.) rating is 150 kva, per ton of steel furnace capacity.

Lower furnace capacities can be obtained by increasing the lining by extra layers of brick instead of using smaller shells.

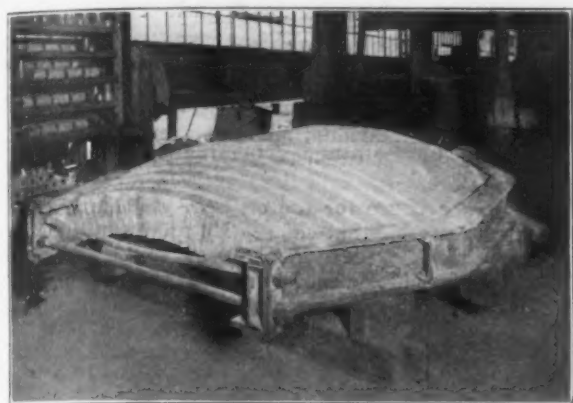


Sectional Views of the Ludlum Electric Steel Furnace, Showing Details of End and Side and the Tilting Mechanism

The power factor of the furnace is about 90 to 95.

The furnace is 3-phase, the current being transformed from 11,000 volts, 40 cycles by a 1500 kva. General Electric transformer for the 10-ton and a 750-kva. transformer for the 5-ton furnace. It is taken off at the furnace at 90, 95 or 100 volts.

The principal point in the patent claim is that the central electrode is projecting into the metal during operation of the furnace, while the other two



A Roof for a Ludlum Furnace, Showing the Low Arch

are just above the slag. This is entirely practical while making tool steel or pig iron, but some difficulty would be experienced in making low carbon steel under such conditions.

The first Ludlum furnace apart from the original plant will soon be in operation. The Hammond Steel Co., Syracuse, N. Y., will be making special and high-speed steels in a 10-ton furnace in its new plant early this fall. A new company, known as the Ludlum Electric Steel Furnace Corporation, originally contemplated as the Seneca, has been organized to sell the Ludlum furnace to other users. Thornton W. Price, consulting engineer, New York, is vice-president and general manager and Edwin Corning is treasurer. The Ludlum Steel Co. itself is now installing a third 10-ton furnace and contemplating the building of a fourth.

To the unusual performances in electric steel making, resulting from war conditions, has thus been added the conversion of scrap back into pig iron, also a result of abnormal conditions. It is hoped that more normal times will furnish a way to make permanent both classes of results, at least for certain purposes.

Buys New Plant to Make Airplanes

The Standard Aero Corporation, Plainfield, N. J., has bought the John Stephenson Co. plant of the J. G. Brill Co. at Elizabeth, N. J., and will immediately alter and equip it for the manufacture of airplanes. The engineers in charge of the work are Paine, McClellan & Campion, 25 Church Street, New York. About \$300,000 worth of new machinery, both metal-working and wood-working, will be purchased. For the present, the company will confine its activities to the manufacture of the planes themselves, but eventually will build engines also. The purchase price of the Stephenson plant is said to have approximated \$750,000.

The American Car & Foundry Co.'s Detroit plant is the first in that city to employ women as munitions makers, 300 having been hired to operate drill presses. The plant is turning out shells for anti-aircraft guns and buoys for floating mines.

APPEAL TO STEEL MEN

Casings and Drilling Machinery Badly Needed in Oil Well Operations

WASHINGTON, Aug. 28.—Urgent representations have been made to the Council of National Defense by the Bureau of Mines that the petroleum supply of the country will soon be curtailed unless some arrangements can be made whereby adequate supplies of steel casings, drilling machinery and other equipment can be assured to the oil producers. The bureau suggests that a special arrangement be made by the council with representatives of the steel industry to take care of the demand for casings and drilling machinery. At the same time, the bureau urges oil producers themselves to employ every expedient that will save supplies and reduce requirements to a minimum, including the abandonment of steel casings where they are not absolutely necessary.

The situation in the petroleum industry is reviewed in a statement prepared by Van H. Manning, Director of the Bureau of Mines, which embodies the substance of the recommendations made to the Council of National Defense. Mr. Manning declares that any way that can be pointed out for providing the supplies of petroleum so essential to the successful prosecution of the war "requires material from the steel industry, and, if these supplies are not forthcoming, our petroleum needs cannot be secured." The situation is said to be critical because the operators find themselves unable to obtain adequate supplies to continue the drilling of oil wells. If they are unable to drill new wells, the present production cannot be maintained, much less increased, for the reason that oil wells do not maintain a constant production, but show a steady diminution from the time they are completed. Were no wells to be drilled for one year's time, it is estimated that our petroleum production would drop by at least one-fourth. Mr. Manning's statement is in part as follows:

At the present time drilling is being curtailed because of the difficulty in obtaining supplies. Not only have the costs of oil-well supplies been increased, but it has become impossible to get them in adequate quantities for any price, and the situation is now worse than at any time since the war in Europe started. Perhaps the situation of the producer is best illustrated by the fact that from California to the fields of Pennsylvania the small producing wells are being abandoned in order to use the casing and other equipment of these wells in new wells from which larger productions are expected; thus, wells still capable of small profitable productions are being permanently abandoned in the desperate search for well-drilling materials.

Swedish Iron Prices Prohibitive

The difficulty of procuring coal in Sweden threatens to curtail seriously the output of its blast furnaces and steel works, according to *The Ironmonger*, London, which says:

"The high prices of Swedish iron and steel have put these materials quite out of the British market. Swedish pig iron, if bought to-day, would cost the British consumer about £45 per ton, compared with £6 per ton before the war. The cost of rough bar iron for making crucible steel, and of steel billets, averages £65 per ton or a little more, compared with £10 10s. and £12 in ordinary times."

The Union Smelting & Refining Co., Inc., Fourteenth Street and Avenue D, New York, producer of white metal alloys, is distributing a celluloid case to contain the card issued by the Government in connection with the recent Federal registration. One of these cases may undoubtedly be obtained by writing to the company.

According to announcement of an official of the Pacific Coast Steel Co. in Seattle, Wash., the old Irondale iron blast furnace near Port Townsend, Wash., will be in operation about Sept. 1.

Steel Makers and Government Buying

The Council of National Defense Takes Steps to Have Status of Committee Members Definitely Decided

WASHINGTON, Aug. 28.—In view of the critical situation that has arisen concerning the propriety of the service on the advisory committees of the Council of National Defense of officers of manufacturing corporations which may be awarded Government contracts, the council has decided to take immediate steps to settle this important question and to determine as promptly as possible the exact status of the various subcommittees. While no formal resignations have yet reached the director of the council, many informal announcements that resignations will be speedily forthcoming unless the legality of service on the subcommittees can be promptly assured have been received by Mr. Baruch and other members of the advisory commission. In the hope of securing the desired assurance without delay an informal request has been made upon the Attorney General for an opinion as to the scope of section 3 of the Lever act and the ruling is expected at almost any time.

Formal Ruling from Department of Justice

Because of the importance of maintaining the present organization of the advisory committees the Council of National Defense has decided to take the matter up in a very comprehensive way and will speedily prepare a formal memorandum describing the duties of each of the important subcommittees and the relation of their duties to the manufacturing organizations with which they are connected. In the event that the informal ruling of the Attorney General is neither sufficiently positive nor broad enough to satisfy the committee members who are in doubt as to their present status, this memorandum will be forwarded to the Department of Justice with a request for a formal opinion designed to cover every phase of the question at issue.

While the members of the Council of National Defense have no doubts as to the intention of Congress, they will be guided by the Attorney General, and in the event that he holds that either section 3 of the Lever act or section 41 of the 35th Statutes at Large precludes the officers of corporations having contractual relations with the Government from serving on the advisory committees, it is probable that a general reorganization will be effected and the committees given a new and entirely unofficial status as representatives of the various industries from which their members have been chosen. In this event their membership may be revised as the result of trade conferences in order that manufacturers generally may have no reason to complain of favoritism in connection with the make-up of the respective committees.

The settlement of this question is of the utmost importance to the work of the Council of National Defense. More than one of the committees, it is understood, is merely marking time pending an authoritative statement as to the legality of the present advisory organization of the Council, and certain individual members have gone so far as to absent themselves from committee meetings with a view to avoiding any possible criticism until the matter is settled. In one case members of an important subcommittee, while continuing to act, have abandoned for the present all official stationery and other forms and are doing their work as informally as possible.

Views of the Author of Section 3

For the purpose of shedding as much light as possible on this interesting and important question the correspondent of THE IRON AGE has secured from Senator Pomerene, the author of section 3 of the Lever food, feed and fuel control act, a statement as to his purpose in framing it and the general object of the Senate in accepting it as a substitute for the original provision reported by the Senate Committee on Agriculture.

It is the Pomerene amendment, read in connection with section 41, chapter 321, 35th Statutes at Large, which imposes the restrictions on members of the advisory committees of the Council of National Defense that has raised this issue.

It is the opinion of the author of this provision that there is no basis whatever for any suggestion of the impropriety of the service on advisory committees of the council of either individual manufacturers or officers of manufacturing corporations.

"My amendment," said Senator Pomerene, "was offered as a substitute for the original provision after I had satisfied myself that the section as reported by the committee would greatly embarrass the Government and would do either one of two things: It would force the resignation of all the really important members of the advisory committees of the council or it would preclude the Government from buying supplies of these men or the corporations which they represented. Either of these results would have been little short of a national calamity. At a time like the present the Government needs the aid of every intelligent man in this broad country, and it especially needs the assistance of our experienced manufacturers who alone are able to advise concerning the great problems of production which is now being carried on upon a scale never before dreamed of. It is only necessary to formulate the proposition that the Government should not buy war material from the concerns represented by these captains of industry to show its absurdity. They must buy from these concerns, and the only question we have had to consider has been how the Government could utilize the brains of these experienced men and their enormous manufacturing facilities while at the same time protecting the people against the exercise of improper influences or imposition in the way of extortionate charges.

Advice Not Prohibited

"When I made the first draft of my amendment it provided that 'no person acting either as a voluntary or paid agent or employee of the United States in any capacity, including an advisory capacity, shall advise, induce, or attempt to induce any person or officer authorized to execute or to direct the execution of contracts on behalf of the United States, to make any contract, or to give any order for the furnishing to the United States of work, labor, or services, or of materials, supplies, or other property of any kind or character, if such agent or employee has any pecuniary interest in such contract or order, or if he or any firm of which he is a member, or corporation, joint stock company, or association of which he is an officer or stockholder, or in the pecuniary profits of which he is directly or indirectly interested, shall be a party thereto.' Upon close examination of this draft I became convinced that the use of the word 'advise' would defeat the whole purpose of my substitute. It was highly important that the Government should have the right to call upon these big manufacturers to advise it with respect to contracts of all kinds, yet with such a prohibition in the law they would be absolutely prohibited from giving any such cooperation. I therefore decided to change the word 'advise' to 'solicit.' By employing the latter term the amendment merely prohibits members of the advisory committees from soliciting business for themselves. Under the present organization of the War Industries Board they have no opportunity to solicit contracts and they are serving, as Congress intended they should serve, in a purely advisory capacity.

Committeemen Simply Declare Their Interest

"Of course I realized and the Senate realized that it would frequently happen that these committees must advise the Council of National Defense to place con-

tracts with the concerns in which the members of the committees were financially interested. This could not be avoided, but in my opinion all reasonable criticism could be forestalled by requiring that whenever a member of one of these committees was personally interested in a contract into which his committee advised the council that the Government should enter, he should file with the recommendation a written statement embracing a full and complete disclosure of his own pecuniary interest and of his interest in any firm, corporation, or association involved in the proposed contract. It seemed to me at the time this matter was under discussion and it seems to me now that these provisions fully safeguard the Government while securing for it the valuable aid of these well-equipped technical and business experts.

"It will be noted also that my amendment provides that no member of these advisory committees shall participate in the awarding of any contract or the placing of any order. The War Industries Board has recently been reorganized and under the system now employed I am advised that it is impossible for any of the subcommittees to have any part in the awarding of contracts or of the placing of orders. The departmental officials consider recommendations and suggestions transmitted through the War Industries Board and themselves place all orders and sign all contracts.

Members Not "Agents" of Government

"Perhaps a word should be said with regard to the proviso which was added at the end of my amendment at the instance of Senator Reed, of Missouri, if my memory serves me. This proviso stipulates that section 3 of the Lever act 'shall not change, alter or appeal section 41 of the 35th Statutes at Large.' I understand that the suggestion of the doubtful legality of the advisory committees of the Council as at present composed is based to some extent upon the language of section 41, which prohibits any officer or agent of a corporation, joint stock company or association from acting as an officer or agent of the United States for the transaction of business with such corporation, etc. In the first place, I do not think that the members of advisory committees are 'officers or agents of the United States' within the meaning of this statute, but the broad question that would be presented to any court before which this provision of the Lever act might be brought is this: What was the object of Congress in enacting section 3? In accordance with a recognized principle of legal construction the court would place section 3 and section 41 side by side and construe them together. What Congress was seeking to accomplish is so perfectly obvious from such a comparison of its enactments that I do not see how there can be any further doubt with regard to the matter."

Senate Considered Publicity a Full Cure

That Senator Pomerene's view of the provisions of section 3 prevailed generally in the Senate at the time this provision was adopted is amply evidenced by an examination of the *Congressional Record* in which the debate appears. Senator Wadsworth, of New York, voiced the general opinion of his colleagues in the following brief statement:

Mr. President, I am in entire agreement with the contention of the Senator from Ohio—that the pecuniary interest which any one of these gentlemen may have in any article which is to be purchased by the Government shall be made a matter of the greatest publicity. I think, if you do that, you would not need to do anything else. The situation is then cured by the weapon with which you are all familiar—"pitiless publicity." If the Government itself knows and the public knows and Congress knows that John Smith, a member of some subcommittee of the advisory commission of the National Council of Defense owns so many shares of stock in such and such a corporation which is about to sell some of its goods to the Government, following the advice of the committee of which John Smith is a member—if the public knows that, we will not have to have any additional provisions of law to protect the Government against fraud. Furthermore, be it remembered, Mr. President, it is not these committees that make contracts; it is the head of the department, the Secretary of War or the Secretary of the Navy. And it is to be presumed that they are exceedingly anxious to protect the Government against extortionate prices.

Senator Knox, one of the ablest lawyers in the Sen-

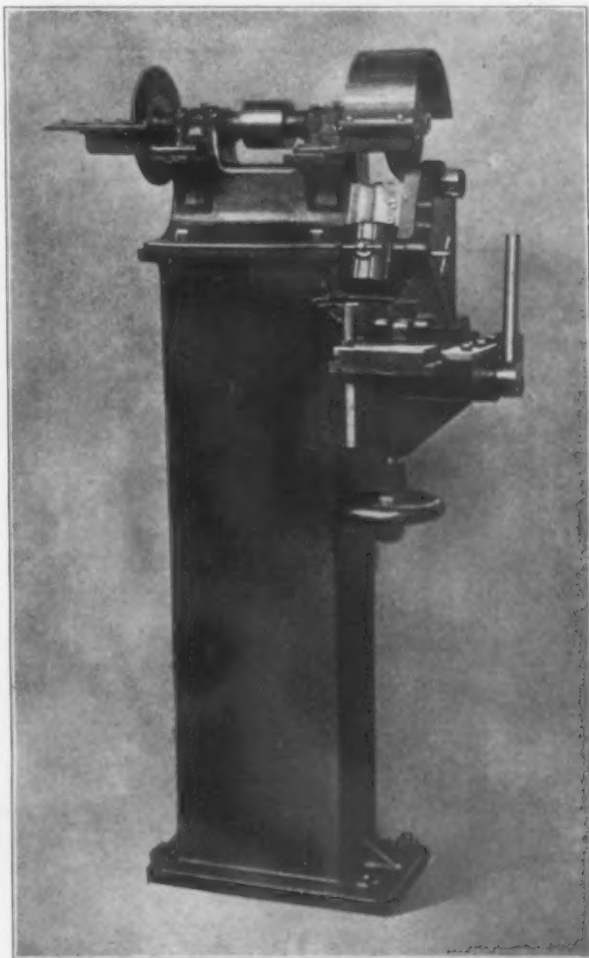
ate, who has served both as Secretary of State and Attorney General, collaborated with Senator Pomerene in the framing of his amendment and is strongly of the opinion that there is neither illegality nor impropriety in the relation now sustained by members of the advisory committees toward the business of the Government.

W. L. C.

Improved Nail Die Grinding Machine

Sleeper & Hartley, Inc., Worcester, Mass., has placed on the market a machine for finishing standard nail machine dies of all kinds. This machine was originally designed for use in connection with installations of the builders' wire nail machinery made in foreign countries.

The machine consists of two wheels mounted at opposite ends of the spindle. The function of one of these wheels is to square the dies and guides are provided upon the work-rest for this purpose. The other wheel, which is intended for grinding the pointing dies, has a V-shaped formed edge. A table is mounted on the machine frame underneath the latter wheel and has a vertical adjustment which is controlled by a screw and handwheel. A support adapted to receive the holder in which the die is mounted for grinding is located on the



Two Wheels, One for Squaring the Dies and the Other Which Is V-Shaped for Grinding the Pointing Dies, Are Employed in a Recently Developed Machine for Finishing Standard Nail Machine Dies

table. Lateral adjustment to bring the dies in line with the wheel is provided for the support, and it is possible to rotate the die holder itself within the support, this arrangement enabling the die to be located at will in any one of the three grinding positions. When the die has been properly located it is traversed back and forth past the wheel, together with both the die holder and its support. At the same time the table can be fed toward or away from the wheel, as may be desired.

The machine occupies a floor space of 16 x 22 in. and its net weight is 350 lb. The equipment of the machine includes one die holder built to conform to the purchaser's specifications and a countershaft. For each section of die stock an additional holder is required.

Cost of Health Supervision of Employees

Results of an Investigation of 99 Industrial Plants for the Conference Board of Physicians in Industrial Practice

A SECOND compilation of the cost of health supervision in industry has been made for the Conference Board of Physicians in Industrial Practice by Magnus W. Alexander, executive secretary of the National Industrial Conference Board. This report, virtually in full, but without the detailed reports of the industries other than the steel and iron and metalworking plants, follows:

The first compilation, published in THE IRON AGE of Oct. 19, 1916, comprised data, mostly for 1915, submitted by 41 industrial plants with an aggregate average of 223,416 employees. The average annual health supervision cost, as then reported, was \$1.88 per person. The lowest cost (\$0.53) was reported by a metal trades

in private or public hospitals; in others by the amount of care given to all injuries whether serious or slight, or by extension of the service to include physical examination of all employees, treatment of sickness of employees at the plant and at home, and even by medical care of employees' families, or by a combination of all these features.

The cost is also influenced, of course, by the kind of work done in particular plants and by the character of the industry. Shops doing very light work, with little hazard exposure, naturally have fewer and less serious accidents than those doing heavy work, particularly where there is much overhead handling of materials, or where many men work in elevated positions, as in the

SUMMARY OF THE ANNUAL COST OF HEALTH SUPERVISION IN INDUSTRIAL ESTABLISHMENTS

Industry	Number of Establishments Represented	Total Average Number of Employees Supervised	Total Cases of All Kinds	Total Medical and Surgical Cost	Average Annual Cost of Medical and Surgical Supervision Per Employee
Metal trades	47	294,646	1,988,991	\$541,771	\$1.84
Rolling mills	7	49,317	358,574	137,047	2.78
Smelting and refining	1	1,270	2,832	6,932	5.46
Light and power	7	24,921	49,046	92,601	3.72
Transportation	5	35,795	81,591	69,633	1.95
Chemicals	6	10,572	78,744	34,797	3.29
Food	5	13,650	69,565	39,875	2.92
Rubber	5	27,462	234,069	76,089	2.77
Textiles	4	8,939	67,380	24,177	2.70
Paint	2	4,023	10,255	29,635	7.37
Leather	2	3,026	9,440	6,102	2.02
Publishing	2	3,358	6,742	3,473	1.03
Coal mining	1	2,454	2,842	4,637	1.89
Gold mining	1	2,500	62,126	35,590	*14.24
Coal and iron mining	1	11,000	131,898	130,000	*11.82
Miscellaneous	3	2,611	11,019	6,126	2.35
	99	495,544	3,165,114	\$1,238,485	*\$2.50

*The average annual cost per employee, excluding plants for which the cost includes sickness treatment of employees and their families at home, was \$2.21.

plant employing 385 persons, the highest (\$7.79) by a paint factory employing 2448. Some of the reports, however, were approximations only, based on more or less incomplete records or on a short experience while the work was in its infancy. It was therefore decided to make a new compilation, based on longer, more varied and more mature experience.

The later compilation covers data for the year 1916 as reported by 99 industrial plants located in 15 states. The total average number of employees represented was 495,544; the average number per plant was 5005; the maximum 37,107; the minimum 141.

Annual Cost per Employee \$2.21

While the average cost per person, as indicated in the summary, is \$2.50, it is not representative, as the total cost on which the average is based includes that of four plants which render unusual service, giving both medical and surgical attention to their employees at the plant and in their homes as well, besides assuming the medical care of employees' families. Omitting these four plants from consideration, the average cost for the 479,634 employees in the other 95 plants was \$2.21.

Where the average cost appears to be unusually high or low, the reason is in many cases indicated in a detailed table available in the complete report, which may doubtless be had by addressing Mr. Alexander at West Lynn, Mass. The size and character of the medical staff is usually the determining factor. In some cases the cost is influenced greatly by the number of injuries treated

power and light industry. The cost in plants manufacturing chemicals and paint reflects the great care exercised to safeguard the health of workers in those industries.

A total of 3,165,114 cases was reported, an average of more than six cases per person employed, at an average cost of \$0.39 per case. The number of cases reported, however, does not include all of the service rendered. In many plants no record is kept of slight injuries, of injuries redressed, of medical cases treated, of home visits made, or of physical examinations. In others, even the most trivial cases are counted. Furthermore, as "cases" are so varied in gravity and in the time required for treatment, any comparisons of costs per case are not of much value.

Cost Does Not Include Compensation

The "total medical and surgical cost" includes salaries of physicians and nurses, cost of outside medical and surgical service and cost of medical and surgical supplies, whether or not paid for by insurance companies as a part of the insurance contract; it excludes all compensation for injuries, all overhead expenses and any wages paid to employees while off duty to have their injuries treated.

The aim of this compilation is to inform employers of the actual cost of health supervision of employees in different industries. To this end, the data were secured from plants engaged in many industries, in light, medium and heavy work, in comparatively safe

	Plant Number	Average Number of Employees	Physicians Employed Full Time	Physicians Employed Part Time	Physicians Engaged for Call Service	Nurses Employed M—Male F—Female	Others Employed	Surgical Cases Treated	Medical Cases Treated	Redressings Made	Home Visits Made	Physical Examinations Made	Total Medical and Surgical Cost	Average Cost per Employee
Metal Trades	1	400	0	0	1	0	1 first-aid	240	240	80	0	0	\$2,000	\$5.00
	2	500	0	0	2	0	1 attendant	1,451	506	654			692	1.38
	3	720	0	0	1	0	0	300	0			0	2,651	3.68
	4	762	0	1 4 hrs. daily	0	1 F.	1 boy	2,032	895	1,399	17	1,715	3,112	4.08
	5	776	0	1 5 hrs. daily	1	1 M.	2 first aiders	7,543	255	6,117	36	40	5,744	7.40
	6	875	0	0	1	1 F.	0	715	150	4,127			1,297	1.48
	7	918	0	1 2 hrs. daily	0	0	0	696	0	4,000	15	563	1,925	2.10
	8	1,000	0	0	1	0	0	1,618	383			0	1,038	1.04
	9	1,100	0	0	Yes	2 F.	0	959	0	678	204	1,500	3,160	2.87
	10	1,157	0	1	7	2 F.	1 first aider	327	1,382	970			5,878	5.08
	11	1,244	0	1 daily	0	2 F.	0	7,984	2,400		200	40	4,040	3.25
	12	1,561	0	0	1	1 F.	0	5,332	3,802	3,826	0	0	1,332	.85
	13	1,730	0	1 2 hrs. daily	0	1 M.	1 stenographer	2,660		4,872	144	2,782	3,485	2.01
	14	1,928	0	1 1 1/2 hrs. daily	0	1 F.	Part time clerk	2,628	572	6,416	716		4,939	2.56
	15	2,000	0	0	0	1 M.	0	3,000		936	144	0	2,330	1.16
	16	2,200	0	0	0	0	1 first aider	1,294	0	0	0	0	1,165	.53
	17	2,400	0	0	0	1 M.	0	7,200	1,000	3,200	0	0	5,250	2.19
	18	2,565	0	0	0	2 F.	0	6,657		11,163		0	4,074	1.58
	19	2,600	1	0	0	1 F.	0	1,628	1,772	812	112	176	3,040	1.17
	20	2,862	0	4 4 hrs. daily	4	2 M.	1 stenographer	4,596 (1)		17,948	148	5,516	9,068	3.17
	21	3,097	1	1 daily	0	0	1 clerk	3,098	220	4,350	20	0	4,491	1.45
	22	3,250	1	0	Yes	1 M., 1 F.	0	1,648	990	13,844		12,117	7,517	2.31
	23	3,503	0	0	Yes	1 F.	0	318	0	0	0	0	3,550	1.01
	24	3,794	1	0	0	2 M., 1 F.	1 clerk	25,782 (1)		32,688			8,820	2.32
	25	4,000	1	0	Yes	2 M.	0	1,280 (2)		24,000	380	8,000	10,980	2.74
	26	4,534	0	2 2 hrs. daily	0	2 M.	0	6,522	0	10,000	1,000	4,278	11,376	2.51
	27	4,848	1	1 hr. daily	2	1 M., 3 F.	1 clerk	2,360	4,944	3,850	3,962	6,246	15,494	3.20
	28	5,300	0	0	8	1 F.	4 first aiders	1,109 (1)		4,671		0	5,157	.97
	29	5,655	0	1 hr. daily	Yes	1 M.	1 clerk	3,968	4,843	4,433	0	1,000	5,728	1.01
	30	5,809	3	0	0	1 F.	2 first aiders	15,992		15,188	0	7,864	8,272	1.42
	31	6,000	1	1	0	2 F.	3 (2)	14,394	11,772	17,416	0	1,004	7,074	1.18
	32	6,727	0	0	2	1 F.	0	10,580		14,000		0	7,713	1.15
	33	6,806	0	0	1	1 F.	1 steward	5,194	2,012	7,417	64	7,000	9,646	1.42
	34	7,608	0	6 6 hrs. daily	0	0	5 (3)	15,659	2,998	53,252	65	23,136	19,897	2.62
	35	7,745	2	0	0	1 F.	3 (3)	3,164	848	5,349	584	1,970	9,002	1.16
	36	7,922	1	1 3 hrs. daily	0	5 F.	1 stenographer	8,122	18,644	7,254	406	6,388	14,997	1.89
	37	8,000	4	0	0	5 M.	2 clerks	1,327	30,500	2,745	1,078	15,565	18,897	2.36
	38	10,000	3	0	1	2 F.	1 stenographer	23,112	9,350	42,972	1,724	25,458	17,680	1.77
	39	11,000	0	1 hr. daily	0	1 M., 4 F.	6 (4)	17,516		39,931			17,267	1.57
	40	12,786	2	0	0	1 M., 2 F.	0	11,177	1,526	24,502	1,719	17,318	13,641	1.07
	41	14,500	5	0	0	9 F.	7 (7)	9,600	3,800	32,000	3,000	18,600	30,200	2.08
	42	15,793	1	0	0	4 M., 2 F.	1 attendant	32,160 (1)		36,676	1,032	0	32,961	2.09
	43	16,776	12	0	Yes	5 F.	(5)	53,006	54,273	62,891 (2)		16,000	28,749	1.71
	44	16,880	5	0	0	1 M., 10 F.	0	29,626		71,914		5,749	34,409	2.04
	45	17,387	2	0	Yes	5 M., 1 F.	0	12,200	742	32,364	1,110	15,648	22,650	1.30
	46	18,521	2	0	0	6 M., 5 F.	5 (8)	55,728 (1)		83,648	0	0	21,606	1.16
	47	37,107	9	0	0	24 M.	(11)	86,611	133,036	202,095	3,643	41,175	87,717	2.36
Rolling Mills	48	1,321	1	0	1	3 M.	0	3,165	17	6,538	19	3,514	4,130	3.13
	49	2,653	1	0	0	0	3	8,918	1,118	37,746	970	0	9,113	3.43
	50	2,700	0	0	2	1 M., 1 F.	1 supervisor	2,880		8,092	1,364	0	5,606	2.08
	51	4,500	0	0	Yes	2 F.	3	16,463	32	37,492	0	0	16,084	3.57
	52	4,910	0	0	Yes	1 F.	3	12,001	0	40,642	849	0	11,010	2.24
	53	8,233	4	4	0	8 F.	(2)	21,590	5,098	40,602	640	18,624	36,104	4.39
	54	25,000	0	Yes	0	2 M., 11 F.	Orderlies	30,000	0	60,000	200	0	55,000	2.20

¹ Included with surgical cases.

² Included with redressings.

³ One attendant, one clerk, one stenographer.

⁴ Three clerks, one masseur, one janitor.

⁵ One clerk, one janitor, one messenger.

⁶ Five clerks, one janitress.

⁷ Three clerks, four cleaners.

⁸ Supt., 16 clerks, janitor, doorkeeper, and scrubwoman.

⁹ Included with other cases.

¹⁰ Two clerks, two drivers, one assistant.

¹¹ Clerical force, dentist, hygienic laboratory, judicial and transfer departments.

¹² Nine clerks, two drivers, one janitor, three cleaners.

as well as hazardous operations, and in shops of various sizes and character, located in various parts of the United States. Some are situated in cities where hospitals and specialists are available, some are in small places where such service can be secured only at considerable expense and delay. With such a large variety of experience to choose from, it is hoped that each employer may find in the detailed table at least one instance which will give him a fair idea as to what such service would cost in his own plant.

The chief significance of these data, from a general viewpoint, is that it is possible to give such a large amount of medical and surgical service at a cost which averages only \$2.21 per employee per year.

Convincing proof of the economic value of health supervision in industry is afforded by the fact that,

when collecting the data contained in this report, it was found that no employer had abandoned the health supervision activities established in his plant. On the contrary, the prevailing tendency has been to invest even more money in extending the service.

Will Move to New York

The American Car & Foundry Co. has leased for five years a half of the seventeenth floor of the Hudson Terminal Building, 30 Church Street, New York, and will consolidate its New York and St. Louis offices there. At present the company has New York offices at 165 Broadway, but could not obtain sufficient space in that building to provide for the departments that will be moved to New York from St. Louis.

MAY CALL GENERAL STRIKE

Meeting of Bridgeport Machinists Called for This Week—Labor Notes

The minimum scale committee of the local Machinists' Union, Bridgeport, Conn., has called a general meeting for Aug. 31, to consider the calling of a general strike of machinists in the city. Demands have been sent to 133 factories in Bridgeport for an increase of 10 per cent in wages and for the establishment of minimum scales for different branches of the trade, that for tool makers being 60 cents an hour and for machinists 50 cents an hour. It is reported that previous to this action, two local factories had made these concessions but that none of the other factories has replied to the demands. The union officials state that this move is a direct result of the refusal of the Lake Torpedo Boat Co., where a strike is in progress, to grant any of the demands.

More than 200 machinists have gone on strike at the Baush Machine Tool Co., Springfield, Mass., following the refusal of the management to agree to give preference to union machinists and to grant what virtually amounts to a wage increase of 15 per cent.

The entire force of pattern makers at the Brooks plant of the American Locomotive Co., Dunkirk, N. Y., declared a strike on Aug. 23, due, it is said, to existing working conditions.

The Grymes Engineering Co., Morris Street, Jersey City, N. J., has advanced the wages of mechanics in its shipbuilding works to \$4.50 a day.

The Erie Railroad Co., Jersey City, N. J., is employing women at its local machine shops for the operation of drill presses and shapers. It is said that other women will be employed in the shops to take the place of men who are called into military service. The same scale of wages as paid to the men workers prevails.

The American Car & Foundry Co., Milton, Pa., has advanced the wages of employees at its local shops 10 per cent. About 1100 men are affected. The plant is now operating on a 24-hour schedule.

Employees at the plant of the Jansen Steel & Iron Works, Columbia, Pa., have received an increase in wages from 20 to 22 cents per hour.

Boiler makers at the plants of the Alabama Dry Docks & Shipbuilding Co., the Hodges Boiler Works, and the Home Industry Iron Works, all of Mobile, Ala., have recently been granted a wage increase of from \$4 to \$4.50 a day.

Labor questions are practically all settled throughout France, according to *La Métallurgie*. The women number 14 to 30 per cent of the total number employed in metallurgical plants.

Several hundred guns were 'irrevocably lost to the British army as the result of a recent strike, according to Sir L. Worthington Evans, one of the parliamentary secretaries of the Ministry of Munitions, in a speech at Manchester, Eng., July 6. One man's grievance, he said, is almost insignificant compared with the result of stopping the whole train of war work. In a late offensive in France, more shells were fired than in the 18 weeks of the Somme offensive. On one type of shell alone, 500,000 were fired in one week. A strike in April lost to the country between 150 and 200 airplanes.

A 6-hr. working day was recently advocated by Lord Leverhulme in an interview printed in a British paper. He would run the machinery 12 hr. with two shifts of operatives, expressing the belief that the human machine would do as much in 6 hr. as in 8, except in a few industries where exceptional conditions prevail and that the extra number of hours worked by the mechanical machines would enable such an increased output as to allow possibly for the same wages now paid for 8 hr. Incidentally, he expressed faith in co-partnership rather than in profit-sharing.

In transferring labor placed through the employment exchange of the ministry of labor of Great Britain, arrangements have now been made to provide a reduced rate of five-eighths the ordinary fares, that is, the fares

in operation before Jan. 1, 1917, or without the 50 per cent increase that now obtains.

As justifying the so-called dilution of labor through the admission of women to industrial plants, F. J. Kellaway, Parliamentary secretary to the ministry of munitions, Great Britain, in a speech before the Allied Engineering Trades at Luton, Eng., said that the total output of ammunition in the third year of the war was 20 times the output of the first year.

An exhibition of women's work in munitions manufacture was recently opened at Leeds, Eng. According to a review of it published in *Engineering*, of London, it was shown that two or three weeks are enough to enable a girl to learn to do the rough turning and screw cutting required to produce screw gages, and after a shop experience of about two weeks girls are able to make screw dies complete except for backing-off and hardening.

The Norton furnace, of the Norton Iron Co., Ashland, Ky., resumed operations Aug. 25, after having been banked several days on account of labor troubles, which have now been adjusted.

Colorado Company's Wage Increases

The Colorado Fuel & Iron Co., in reviewing "two years of industrial democracy" in its *Industrial Bulletin* of July 31, gives a summary of results obtained under the company's industrial representation plan and agreement. So far as the steel works are concerned the arrangement went into effect May 4, 1916, by vote of 2321 to 863, while the plan was adopted at the mines in October, 1915, by vote of 2404 to 442. The average individual monthly wage in January, 1916, was \$79.24. In May, 1917, the average was \$114.59. Typical cases taken from the company payroll are given as follows, showing the increase in two years:

In Iron Mines:	May, 1915	May, 1917
(a) Miner	\$0.31 1/2 per hr.	\$0.49 per hr.
(b) Steam shovel engineer.....	.55 per hr.	.99 per hr.
(c) Underground laborer.....	.24 per hr.	.38 per hr.
In Steel Works:		
(a) Common laborer.....	.19 1/2 per hr.	.30 per hr.
(b) Blast furnace keeper.....	.24 per hr.	.36 per hr.
(c) First helper, open hearth (per 100 gross tons).....	8.80	12.34
(d) Wire drawer (per 1000 lb.)	.52	.69

In referring to the provision for bettering employees under the service retirement plan adopted March 22, 1917, the review says that 24 employees have been retired on monthly allowances and that 200 25-year service buttons have been awarded. The report gives in considerable detail the work that has been done in improving homes, in education in mining camps, progress in safety precautions, establishment of sanitary standards, work of Y. M. C. A., churches, Sunday schools, employees' organizations, etc. More than 90 complaints have been adjusted through the president's industrial representatives, apart from a much larger number of less important misunderstandings between employees and local managements.

The Marlin-Rockwell Corporation having acquired the assets of Standard Roller Bearing Co. of Philadelphia; Rockwell-Drake Corporation of Plainville, Conn.; Mayo Radiator Co., New Haven and Marlin Arms Corporation, New Haven, announces that owing to the well developed sales organization of the Standard Roller Bearing Co., Philadelphia, it will direct the sales of the above companies with the exception of the Marlin Arms Division.

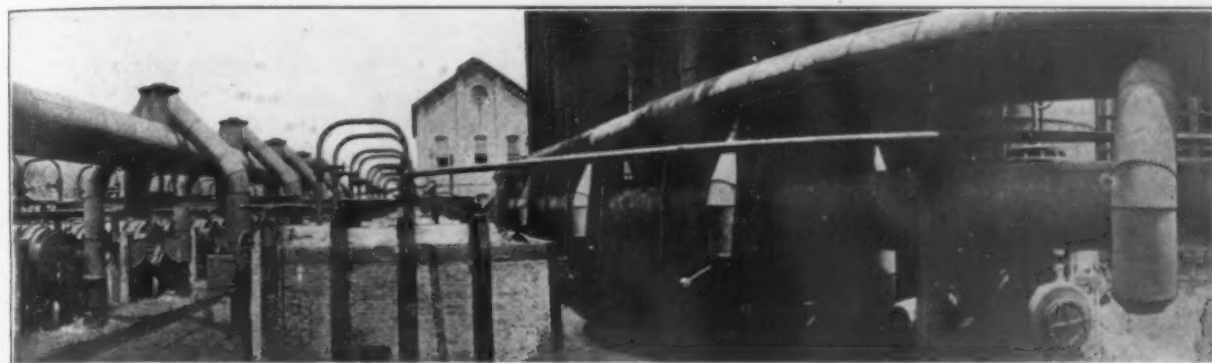
Extensive expansions are being made to the York, Pa., electric welding plant of the American Chain Co. which will increase the number of employees from 1800 to 2600. Ground has been broken for a new building, four stories, 72 by 420 ft.

Canton Railroad Co., Baltimore, Md., W. B. Brooks, president, will enlarge its terminal yards in the suburbs of Baltimore.

MOVING BLAST FURNACES

One from Alabama to be Rushed to India—Two at Troy Dismantled

THREE more blast furnaces, stacks which have not been in service for years, are to be moved to new fields, one as far away as India. Recently the Algoma Steel Co. arranged to dismantle and erect at its works 400 miles away the blast furnace at Midland, Ont. Lately two Breaker Island furnaces of the American Steel & Wire Co. at Troy, N. Y., were bought for use elsewhere, and now Battelle furnace at Battelle, Ala., is being knocked down to be in use within seven months, making ferromanganese in India for the Tata Iron & Steel Co. These developments are a commentary on the stress for deliveries of iron and steel on the one hand and the difficulty of getting new equipment



The Boilers of the Battelle Furnace Plant Will Also Go to India But for Use as Tanks

in desired time on the other. A sidelight is thrown on the situation in the case of the Battelle furnace in the plan to send the steam boilers with the furnace equipment not for steam raising purposes, but for tanks for various needs, such is the difficulty of getting tank steel, fabricated or otherwise.

The moving of the Battelle furnace will be one of expedition. The work is in charge of the engineering firm of Charles P. Perin and Stewart M. Marshall, New York. It is planned to have the stack and the rest of the furnace plant down within 60 days, and they have arranged with the British Government, agreeable to the United States, to ship in a special vessel, either from Mobile or New Orleans. F. W. Claffin, in charge of construction for Perin & Marshall, of the large electric steel plant of the British Government at Toronto, is now engaged on the Battelle moving project. It is understood that the furnace will make twice as much ferromanganese as the Tata steel works will need and a supply is likely to be available for sale in this country through Hickman, Williams & Co.

The Battelle furnace was the central feature of the property of the Lookout Mountain Iron Co., at Battelle, Ala., 34 miles south of Chattanooga, Tenn. The plant, which was described in THE IRON AGE of Aug. 4, 1904, was put into operation Sept. 10 of that year. J. G. Battelle was president. Since 1906 the furnace has not been active and the property has been controlled for some years by William S. Rowe, Cincinnati. The furnace stack is 85 ft. high with a 19-ft. 6-in. bosh and has a Brown single-track skip hoist and stock distributor. There are four 21 x 80 ft. Whitwell four-pass stoves. The boiler plant comprises 20 100-hp. horizontal flue boilers, 72 in. x 20 ft. These, as stated, will be used as tanks. The three simple Tod blowing engines, with 46-in. steam ends, 84-in. air tubs and 60-in. stroke, are for sale, as the Tata plant has ample blowing capacity with three Escher-Wyss and one Ingersoll-Rand centrifugal blowers. Some of the other equipment will also be subject to sale, as not needed in India, part probably of a boiler and steam-air compressor and steam electric plant provided for working the mines contiguous to Battelle furnace.

Breaker Island Furnaces Shipped

One of the Breaker Island furnaces was bought by the Seaboard Steel & Manganese Co., which last year acquired Temple furnace at Temple, Pa., and which is now to increase its production of ferromanganese. The plant is now in process of shipment, the dismantling, moving and re-erection being also in the hands of Perin & Marshall as engineers. The Seaboard gets its ore from Elkton, Va., and further south, from Cuba and from Brazil. C. F. P. Hopkins, Cleveland, is chairman of the board of directors, H. C. Wolle, formerly assistant superintendent of the Cambria Steel Co., is president and Milford Wortham, formerly of the Lucy furnaces of Carnegie Steel Co., is general superintendent.

The other Breaker Island furnace is going to be erected near Phillipsburg, N. J., for the Northern Ore Co., which recently purchased the Keystone furnace, Island Park, Easton, Pa., from the Thomas Iron Co.

S. H. Chauvenet, formerly connected with the Robeson and Sheridan blast furnaces in the Lebanon Valley, is manager.

The Breaker Island furnaces were owned successively by the Troy Steel & Iron Co., the Troy Steel Co., the Troy Steel Products Co. and the American Steel & Wire Co. The island where they were built is opposite Troy, N. Y. They date from 1886-7 and were last active in 1897. The stacks are 18 x 80 ft. and have each four Whitwell stoves.

New Rates on Pig Iron

The rates on pig iron from various Middle Western furnace points to Atlantic tidewater follow:

From Erie: To New York, old rate \$3.10; to Philadelphia, old rate \$2.58, new rate \$2.90; to Boston, old rate \$2.75, new rate \$3.30; to Baltimore, old rate \$2.28, new rate \$2.80.

From Cleveland: To New York, old rate \$3.18, new rate \$3.70; to Philadelphia, old rate \$2.98, new rate \$3.50; to Boston, old rate \$3.38, new rate \$3.90; to Baltimore, old rate \$2.88, new rate \$3.40.

From the valleys: To New York, old rate \$2.98, new rate \$3.50; to Philadelphia, old rate \$2.78, new rate \$3.30; to Boston, old rate \$3.18, new rate \$3.58; to Baltimore, old rate \$2.68, new rate \$3.08.

From Buffalo to New England points, old rate \$2.58, new rate \$3.10.

The Commonwealth Steel Co., Granite City, Ill., has begun the construction of a housing system for its conveyors for transporting the molding sand from the storage bins to the molding floors. It will be electrically operated, doing away with the hand labor and barrows which have been used heretofore. The new building is 550 ft. long of structural steel and corrugated iron and will cost about \$100,000.

It is expected that the two blast furnaces at Dayton, Tenn., recently acquired by H. S. Matthews will go in blast in January, 1918. Improvements and repairs are now under way.

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THE IRON AGE

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Danger in Profit Paring

In its price regulation policy, the Government presumably has three objects in view: Protection of the consumer including the Government against excessive prices, guaranteeing the producers a reasonable return and keeping up production. In achieving these results, the President evidently has succeeded much better with anthracite than with bituminous coal. There is general concurrence in the opinion that the prices of anthracite are reasonable and that production will be continued at not less than the present rate. As to bituminous coal, the feeling is very different and the outlook is that some mines will be compelled to suspend operations after they complete present contracts, which the law provides shall not be disturbed by any price regulation policy. From the South particularly, loud complaints against the alleged injustice of the prices fixed for the product of that section have come, and a delegation has been sent from the Birmingham district to Washington to protest.

It is evident that the official and other advisers of the President were not well informed in regard to the cost of mining bituminous coal, and the announcements relating to the various kinds of coal mined in widely separated sections show how easy it will be to fall into similar error in the case of iron and steel products, which are manufactured in many parts of the country under greatly different conditions. It has been widely published in the past week that the Federal Trade Commission has found such wide variations in the cost of rolled steel at different plants as to make it virtually impossible with any justice to fix one price for all. The President's order, it is therefore intimated, will fix varying prices for the different plants on transactions with the Government, rather than prices differing according to districts. The intricacies of such a plan are so devious as to make it admittedly impossible as a solution of the problem of prices to the general public.

But there is the naive suggestion in that connection that the Government will rely upon the announcement of its price to each plant to bring down prices for private purchasers "who it is believed will be unlikely to pay more than a reasonable profit" over the cost figure ascertained by the Government. Yet for many months private purchasers

have known full well that market prices represented far more than a "reasonable profit" without that knowledge being of the slightest use to them in getting cheaper steel. Such filterings from the Trade Commission's inquiry suggest that the disturbing possibilities of price fixing in steel are even greater than are indicated in the coal industry, for the proposal to pay different prices to different producers implies that the Federal Trade Commission is able to make so nice an adjustment of profit that no producer shall have too much or too little. The danger is that in paring profits the Government may cut so deep as to defeat its own objects.

Government Should Stimulate Output

Undoubtedly there are commodities the price of which the Government should seek to reduce. It is no time for some to make inordinate profits and add largely to their wealth, when the total material wealth of the country is increasing less rapidly than usual, if, indeed, it is not actually decreasing, as maintained by some students of the economic situation. It is, however, a drastic operation to reduce market prices by Government fiat, and when any alternative presents itself promising the same result it should be embraced and utilized to the fullest extent.

The President's appeal of April 15 that every one should do his bit must not be forgotten. It may be well to review it, in the light of what has since occurred. To the farmer there was the appeal that the harvests of food should be made as large as possible, and the Administration, on its part, promised the farmers full supplies of seeds and labor. One thing that has occurred is that the price of the 1918 wheat crop is fixed at not under \$2 a bushel to the farmer. Compared with prices in previous years, the \$2 price suggests either a famine in labor or a very unusual profit to the farmer.

The miner was called upon not to slacken or fail; he was expected to work as hard as possible. There is every reason to believe, however, that if the coal miners were doing their best the bituminous operators would not complain as loudly as they do of the \$2 coal price fixed last week. It is true that the production of bituminous coal in the first half of this year exceeded the production in the

same period a year earlier by 8 per cent, but it is quite certain that the difference between production and capacity last year was much more than 8 per cent.

In the case of coke, the statistics of the Connellsville *Courier* show a decrease in production from the first half of last year to the first half of this year of 20 per cent. The fact that the production of pig iron in the first half of this year was less than in either the second half or the first half of last year has been well advertised, and it is equally well known that there was blast-furnace capacity available to make a materially greater output.

Undoubtedly the war necessitates practices that would not be resorted to in time of peace, but such practices are no better than necessary evils. They do not become good in essence because they are forced by war. All other means should be tried first. Certainly it would not be right for the price of coal to be fixed at a low level and nothing be done to stimulate production. The common surmise is that if it is found that there is not enough coal being produced the Government will take over some or all of the mines, but that should be the last resort, not the first.

The idea is common, but it is quite erroneous, that during the progress of a war the rank and file of the people grow continuously more and more enthusiastic. In the early weeks after the declaration of war a common suggestion was, "Wait until the people wake up!" They do wake up to an appreciation of the horrors of war, but those who have observed the progress of thought in other countries are clear in their judgment that there is not a spontaneous increase in the enthusiasm of the people each to do his part. When they actually do increase their efforts it is because they have been subject to influences from outside. They have been taught, cajoled, stimulated, forced, to do more.

The President's appeal of April 15 was excellent. It was timely and sound. But it does not follow that four months later we can assume without question that every one has lived up to it. As with publicity in the sale of merchandise, it is now high time for the "follow-up" literature and the personal call. What more appropriate at this time than to take up that appeal, paragraph by paragraph, and sentence by sentence, and see whether or not there are slackers? Are the coal miners and the coke workers putting forth their maximum effort? Do the farmers need the stimulus of \$2 wheat for next year? Are the workers in the mills and furnaces giving a full week's work each week?

These questions are particularly timely when the food control is being put into practical operation. It is the testimony of a host of employers that their men work enough hours per pay period to give them the income they require to meet expenses. If the food control decreases their expenses there is no reason to expect more continuous service in the future.

There have been echoes from draft exemption boards in various districts that men who have received exemption by reason of the nature of their work, or even because they have shown that they have dependents, are going to be watched to see

that they remain at the calling and render full service, or to see that they exert their maximum effort to provide for their dependents. At best, this would apply to but a small proportion of the workers. The spirit of the selective draft is that every one has a duty. Men between 21 and 31 were called not because they owe a greater service to the country, but because it was thought they were best fitted to render the particular service of fighting. Those not called are exempted merely from that particular form of service. It is time that more effort be made to see that these others do their full duty. It would be an egregious blunder to assume for a moment that all will do their duty spontaneously.

Pig Iron from Steel Scrap

"Synthetic pig iron" produced in commercial quantities is an interesting metallurgical development of which details are given on other pages. Steel scrap is being reconverted into high grade pig iron in an electric furnace; in other words, the original constituents of pig iron are made to reunite in the condition originally assumed. This unusual achievement is another evidence of the adaptability of electrical energy to the production of results impossible by any other means.

While distinctly an outgrowth of war conditions in the steel industry, the process presents some unusual features and has interesting possibilities. The question of cost is the vital one, when the process is regarded from the viewpoint of normal times. It is not difficult at present prices to compete with the blast furnace in making high grade iron; what can be done under peace conditions is another question. However, it should not be overlooked that scrap, electrodes, refractories and labor are high to-day, as well as the final product, and that the prices of the former may so readjust themselves as to make possible what to some minds seems improbable.

Outside of raw materials and overhead charges, high grade pig iron can be made by the synthetic process at from \$7 to \$8.50 per ton in the ladle, under present conditions. Knowing that these costs can be lowered in normal times gives some basis, even if not approximate, for a judgment of the future of the process. At any rate there are two fields in which synthetic pig iron may become a factor. It is practical and economical in districts where pig iron is always high priced, as on the Pacific coast. It is also likely that its purity and its dynamic and static properties will make it a worthy competitor of charcoal iron.

Prospects for Steel Demand

The present theoretical capacity of this country for the production of steel ingots, according to a careful compilation recently made, is about 50,000,000 tons a year, while about 3,500,000 tons of new capacity now under construction is expected to be completed by February, 1918. The annual statistical report of the American Iron and Steel Institute, just published, shows for steel ingots and castings combined a capacity of 45,787,780 tons at the beginning of 1916, and a capacity of 49,613,888 tons

at the close, this representing an increase of 4,826,108 tons for the year. The annual summary of THE IRON AGE, published Jan. 4, showed new construction amounting to 4,205,000 tons. The slight divergence in the figures may be accounted for by capacity being slightly increased at works where there were no new furnaces built. Assuming that the average theoretical capacity for the year lay midway between the extremes, and allowing for a loss of 5 per cent in output due to transportation difficulties, the actual capacity in 1916 would be about 95 per cent of the rated capacity. In other words, with all conditions favorable, the possible production may be taken at 95 per cent of rated capacity. Applying this factor to the present capacity of 50,000,000 tons of ingots (excluding castings), the output under favorable conditions should be 47,500,000 tons of ingots a year.

The actual ingot output in 1916 was 41,401,917 tons, so that there is an excess now over the 1916 average of 6,100,000 tons, or 15 per cent. Study of prospective demand for steel must be based upon this increased capacity. It cannot serve the purpose to allow for a curtailment in actual output due to shortage of raw materials. For at least eight months the production of pig iron has been much less than the capacity on account of a shortage in coke, and it would be absurd to conclude that for an indefinite period the iron and steel producing industry is going to be shackled by such an incidental item as coke. The recent report of the Geological Survey shows that in 1916 an average of only 70 per cent of the beehive ovens were in blast. If 80 per cent were operated, instead of 70 per cent, there would be about 5,000,000 tons more of coke, which would solve all difficulties. Apparently the Government is going to take charge of coke prices, and if so, it will soon find that one good way to help the decline in steel prices it is so anxious to bring about will be to force the production of coke. Then, too, there is some new capacity in by-product coking coming along.

There were 30,557,818 tons of rolled steel produced in 1916. Exports of rolled steel and manufactures accounted for about 6,500,000 tons, or 20 per cent. With a 15 per cent increase, on the basis of increased ingot capacity, there should be for the future about 35,000,000 tons of rolled steel.

Last year there was ordinary domestic demand and export demand. For the future there is domestic demand, export demand, and Government demand. Last year's exports went in considerable part to neutral countries. In future, such exports will undoubtedly be very light. It is by no means certain that the requirements of the Entente Allies will be greater in future than they were in 1916. England has very considerably increased her steel-making capacity, but if exports remained the same the Entente Allies could be given considerably more steel by the curtailment in exports to neutrals, whereby our total exports might not be increased. Deducting the 6,500,000 tons from last year's production leaves 24,000,000 tons for the domestic demand. Deducting the same amount from the present capacity leaves 28,500,000 tons for the domestic demand, plus requirements of our own Government. To engage the full capacity, on these assumptions,

either the Government must require for its own use more than 4,000,000 tons of steel a year, or domestic consumption must be greater in these war times than it was in our time of peace last year.

As to the Government's own requirements for war purposes, the greatest item is shipbuilding material. The total production last year of sheared plates, $\frac{1}{4}$ in. and heavier, was only 1,864,500 tons, and a great part of this was in ship plates, some exported and some consumed at home. If the remaining tonnage were diverted to shipbuilding the consumers thus deprived of plates could not in any great degree substitute other forms of steel. Thus the main increase in total demand for steel created by the Government's activity in shipbuilding must be in plates from new plate-mill capacity, a liberal estimate for which is 1,000,000 tons a year, and in the structural shapes that would go with them, for which 400,000 tons would probably be an outside estimate, unless the building of composite ships reaches very large proportions.

In rails, the heaviest requirements of the Government are satisfied with the 150,000 tons recently placed. In sheets, pipe, wire, etc., the aggregate requirements can hardly mount to more than a very few hundred thousand tons at the outside. In shell steel there will doubtless be several hundred thousand tons a year. Thus it is difficult to count up more than 4,000,000 tons for the Government, which leaves it that to engage the capacity fully the ordinary domestic consumption must be as great as last year, absorbing 24,000,000 tons of rolled steel.

For the month of July the Bridge Builders' and Structural Society reported bookings equal to 41½ per cent of a month's fabricating capacity, there having been a continued decrease since March. New building operations are light everywhere. The railroads have ceased buying, and on the whole it seems impossible to expect a continuance of the 1916 rate of domestic consumption, particularly when labor is scarcer than in 1916, and is to become scarcer still. If the supply of steel does not eventually exceed the requirements it will be because the supply is far short of the physical capacity, by reason of scarcity of labor and materials involved in making steel.

Apart from the relation between supply and requirements it must be noted that buyers have developed their familiar waiting attitude, and whenever in the past they have done this the demand upon the mills has fallen quite short of the actual ultimate consumption, through the widespread reduction in stocks in the hands of jobbers and manufacturing consumers. At such times the demand, as expressed in the market, is materially less than the actual ultimate consumption. At other times, when prices are rising and mills filling up with orders, the market demand exceeds the requirements.

The Derby Mfg. Co., Derby, Conn., has secured an injunction to prevent the Seymour Mfg. Co., Seymour, Conn., from placing attachments on its plant in a threatened suit involving about \$300,000 for default on a contract for copper shell bands. The Derby Mfg. Co. claimed that an oral agreement had been broken by the Seymour Mfg. Co., and a temporary injunction has been issued to enable the disagreement to be settled in the Superior Court.

The New Furnace at Coatesville

The new No. 3 blast furnace of the Worth Brothers Co., Coatesville, Pa., which was blown in on Aug. 22, has a capacity of 600 tons per day, and is the largest unit of its kind in the East. The stoves are of the side combustion type and equipped with improved gas burners, and draught is supplied by a stack 14 ft. in diameter and 200 ft. high. Each of the four stoves is 22 ft. in diameter and 100 ft. high. Blast is supplied by two Bethlehem gas blowing engines each of 3000 h.p., and having a capacity of 29,000 cu. ft. of air per minute. There is also a spare set of two blowing engines. Two gas-cleaning plants have been provided, the first, or primary, washers consisting of two strands of two towers each, the towers being 13 ft. by 60 ft. The second or clean gas washers consist of two units of Theisen rotary washers. The gas leaving the furnace is conveyed to the primary washer through a main 100 in. in diameter.

On account of the small amount of water available for cooling purposes and gas washing, unusual means had to be resorted to for the conservation and re-use of the cooling water. To accomplish this a spray cooling system has been installed. The water is first pumped to Nos. 1 and 2 furnaces, discharged into a collecting basin and then pumped to the No. 3 furnace and the primary gas washer. Water for the condensers and for washing the gas in the secondary washers is taken directly from a standpipe on the Nos. 1 and 2 blast furnace system, affording cooler water for these purposes. Filters were provided for filtering the gas engine cooling water and this installation consists of four filters and one spare having a capacity of 2000 gallons per minute. The water system is supplied by a turbine driven centrifugal pump of 10,000 gal. per minute capacity. For starting the gas blowing engines two air compressors have been installed, each with a capacity of 500 cu. ft. of air per minute at 225 lb. pressure per sq. in.

A New Export Company

The Peerless International Corporation has been formed with \$800,000 capital to carry on an international export and import and general engineering and contracting business. Plans are maturing for the sending of representatives of the company into foreign fields. An affiliated engineering interest is the L. K. Comstock Co., which will be represented on the board by its president, L. K. Comstock. Another director is Walter W. Birge, president Air Reduction Co., who recently negotiated the projected combination of the Union Carbide Co., the National Carbon Co., the Air Reduction Co. and their associated interests.

The president of the company, Alfonse Kaufman, was formerly engaged in consulting engineering in New York and Chicago. The vice-president, S. Weiner, is well known to the metal trade. The treasurer, Wm. M. Blain, has just resigned as treasurer and director of Viele, Blackwell & Buck and associated companies, with which he has been connected for the past eleven years. The secretary, Frederick A. Beardsley, has been engaged in engineering and exporting for a number of years.

It is probable that the Halladay Motor Car Co., now operating a plant at Mansfield, Ohio, in the manufacture of the Halladay automobiles, will build a plant at Warren, Ohio. The Board of Trade at Warren has made a proposition to give the company 25 acres just east of the tin-plate plant of the Liberty Steel Co., on condition that the company spends \$40,000 in the building of a new plant, and moves its machinery and other equipment from Mansfield to Warren.

The next meeting of the American Gear Manufacturers Association will be held at Edgewater Beach, Chicago, on Sept. 14 and 15. F. W. Sinram of the Van Dorn & Dutton Co., Cleveland, is president, and F. D. Hamlin of the Earle Gear & Machine Co., Philadelphia, is secretary.

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The General Steel Co., a Delaware corporation, which is building a large electric steel plate, bar and billet mill at St. Francis, Milwaukee county, Wis., in its application for authority to do business in Wisconsin states that its capital stock is \$730,000, and names these officers: President, W. E. Moore, Pittsburgh; vice-president, P. A. E. Armstrong, St. Francis; assistant secretary, W. F. Peterson, St. Francis. Excellent progress is being made in the construction and equipment of the mill, which will be ready for operation about Nov. 15. The work is under the direction of W. E. Moore & Co., consulting engineers, Pittsburgh, as already noted in THE IRON AGE.

Steel Price Fixing Is Close at Hand

Large War Orders Awaiting the President's Decision—J. Leonard Replogle to Buy for the Government and the Allies—Japan and the Embargo

WASHINGTON, Aug. 28.—Rapid progress has been made in the past week in perfecting the organization of the War Industries Board to buy for the Government and the Allies, and as soon as President Wilson announces the basic prices to be paid for steel the placing of definite orders on an unprecedented scale will begin. The President has had before him for several days the preliminary report of the Federal Trade Commission with respect to the cost of producing steel and copper, and the problem of determining reasonable prices on these bases is receiving his almost undivided attention and is also occupying a large part of the time of the members of the War Industries Board, who are giving the President the benefit of their knowledge and experience.

Buying Commission for All Allies

Formal agreements were signed on Aug. 24 by the Secretary of the Treasury with the approval of the President on behalf of the United States and by the representatives of Great Britain, France and Russia for the creation of a commission with headquarters at Washington through which all purchases made by those governments in the United States shall proceed. According to the official announcement it is expected that similar agreements will be signed with representatives of other allied governments within a few days. The joint agreement names Bernard M. Baruch, Robert S. Lovett and Robert S. Brookings as the purchasing commission. All of these gentlemen are members of the recently created War Industries Board of the Council of National Defense, and will thereby be able to thoroughly coordinate the purchases of the United States Government with those of the allied powers. In making this announcement Secretary of the Treasury McAdoo states that "It is believed that these arrangements will result in the more effective use of the combined resources of the United States and foreign governments in the prosecution of the war."

J. Leonard Replogle to Be Buyer of Steel

Following close upon the appointment of the purchasing commission came the announcement that Alexander Legge, general manager of the International Harvester Company, had been appointed assistant to Mr. Baruch in the work of purchasing raw materials for the United States and the Allies and that associated with Mr. Legge there would be a director of steel and a director of copper, the first mentioned post to be held by J. Leonard Replogle. The copper director is Eugene Meyer, Jr., of New York. Mr. Replogle, who is president of the Wharton Steel Co., is well known here and is credited with a comprehensive knowledge of the steel industry. He was identified for many years with the Cambria Steel Co. at Johnstown, Pa., serving as vice-president and sales manager of that company, of which he ultimately secured control and sold it to the Midvale Steel & Ordnance Co. Mr. Replogle, in addition to his responsibilities in purchasing, has been appointed by Judge Lovett of the War Industries Board as adviser on questions of priority in the delivery of steel.

Same Prices to Allies, but How?

The agreement signed by representatives of the United States and of Great Britain, France and Russia

for the buying of war materials contains a stipulation insisted upon by President Wilson that each allied government shall require its own producers to sell their products to all the Allies at prices no higher than those charged their respective governments. It may be taken for granted that the purchasing commission will promulgate this requirement forthwith, but it is frankly admitted at the headquarters of the Council of National Defense that no definite plan has yet been worked out for its enforcement. President Wilson is so doubtful regarding the authority conferred upon him by existing laws, including the national defense act, the naval appropriation act and the Lever food, feed and fuel control law, that he has requested the Attorney General to prepare an opinion defining the Government's power to control prices, not only of those articles specifically mentioned in the Lever act and the commandeering sections of other laws, but all forms of war material and such important commodities of general consumption as iron and steel, copper, lead, lumber, etc., etc.

A Suggestion of Coercion

The Council of National Defense is relying heavily upon the willingness of the leading producers to supply the allies at the prices made to the United States, and if serious difficulties are encountered in the enforcement of this arrangement an appeal may be made to Congress. No member of the Council is willing to express the opinion that the Government can compel producers to sell to the Allies at fixed prices in default of legislation, and there is considerable doubt as to the constitutionality of a law requiring them to do so. It is evident, however, that certain members of the commission are contemplating bringing to bear upon recalcitrant manufacturers some extraordinary influences applied in an indirect manner. There can be no doubt that the Government has ample authority to direct the distribution of coal, both hard and soft, and to fix the price thereof, and it is suggested that the preferential treatment in the matter of coal supplies of manufacturers acquiescing in the purchasing policy of the War Industries Board would speedily bring all their competitors to terms. Such a system savors too much of coercion, not to say official blackmail, to please certain members of the board, and it is not likely to be employed, except, possibly, as a last resort.

Reason for a Liberal Price Policy

A significant statement was unofficially made here to-day by a member of the Council of National Defense which indicates that certain members of the Council are counting upon the employment of a liberal policy in price-fixing to induce manufacturers to supply both the American Government and the Allies without quibble over statutory authority. It is pointed out that in the case of all the nations at war, including the United States, all manufacturing corporations are paying not only heavy corporate taxes, regardless of war profits, but in addition are turning into the treasuries of their respective governments a very large percentage of special war earnings running, in the case of Great Britain, as high as 80 per cent. Liberal prices would stimulate production and form a basis of earnings for the payment of heavy taxes and what the allied governments would be taking out of one pocket they would be putting

into another less a small percentage in the way of a bonus to the producer.

The President and the Steel Control Bill

There has been no development during the past week indicating that private consumers are to reap any advantage from the fixing by the President of the price of iron and steel except that there has been an apparent revival of interest in the Pomerene bill authorizing the Government to distribute at reasonable prices the entire output of the industry. Progress with regard to this measure is described in another column of this issue. It is now practically conceded by the Council of National Defense that the Government is wholly without authority to fix the price of steel for private consumption, and this view is said to be entertained by the President, who, as a consequence, is lending his influence to advance the parliamentary position of the Pomerene measure.

Warnings have been sent out from official sources designed to conserve the output of steel for Government use. The Secretary of the Navy has appealed to builders and contractors throughout the country to discourage the erection of skyscrapers and unnecessary bridges during the period of the war. Mr. Daniels states that the Navy "wants all the available steel in the country for the manufacture of hydroplanes and destroyers to hunt down and sink German U-boats." The Secretary's statement is not to be taken quite literally, but probably reflects his anxiety lest his newly launched program for the building of 150 additional destroyers may cut too heavily into the plans of the United States Shipping Board for a big fleet of cargo carriers aggregating some 8,000,000 tons.

Japan and the Ship Steel Embargo

The Japanese Government is employing every argument in its negotiations with the United States to secure plates and shapes for the construction of steel merchant vessels. During the past week a proposition has been made to the American Government to grant the use of Japanese shipyards for building merchant vessels to be used either in the Atlantic or Pacific trade. Viscount Ishii of the Japanese mission is putting forward this proposal in consideration of the relaxation of the steel embargo. The Japanese officials virtually admit that the shipbuilders of Japan are making great fortunes out of the war and have no special equities in the effort they are making to secure shipbuilding materials in the United States. For this reason they are proposing a definite business bargain under which the steel supplied by the United States will be used exclusively in the building of vessels employed for the transportation of troops, war supplies, or food to meet the war emergency.

No Coke Price as Yet

The bituminous coal producers will hold several meetings this week to consider the President's scale and presumably will later file protests against it on the ground that it will force many small mines to suspend operations. Dr. H. A. Garfield, fuel administrator, has been quoted as saying that in view of the war emergency the shutting down of small mines where the cost of production is high will not be regarded as an unmixed evil as the labor can easily be shifted to the more productive mines and the output substantially increased at minimum cost.

Coal operators in Virginia and West Virginia are calling attention to the fact that thus far there has been no publication of any plan of the President to fix the price of coke, and it is intimated that with run-of-mine coal at \$2 a ton coal producers will do well to turn their attention to making coke, which is now quoted at prices that would represent very handsome profits as compared

with selling coal at \$2 f.o.b. the mine, there being idle oven capacity in the Virginias. Dr. Garfield declines to comment on this phase of the matter beyond calling attention to the fact that the President is clothed by the Lever act with the same power to fix the price of coke and petroleum as he has already exercised with respect to coal. Under the circumstances it would not seem to be a very prudent enterprise to invest any considerable amount of money in going into coke production, based on the expectation of reaping profits equal to the difference between \$2 coal and \$8 or \$10 coke.

The Valley Iron Co. Organized

The Valley Iron Co. has been incorporated under the laws of Ohio, with a capital of \$200,000 by Wade A. Taylor, C. H. Stewart, D. A. Strickland, F. L. Stewart and J. D. Blackburn, and will deal in, for its own account, pig iron, billets, slabs, sheet bars, merchant bars, plates, sheets, formed metal roofing products and tin plate. The company will have in addition to its main office, which will be located in the Mahoning Bank Building, Youngstown, Ohio, an office in New York City, which will be in charge of a man thoroughly familiar with the export trade. While there are a number of concerns engaged in similar business in Pittsburgh, there is none in the Mahoning or Shenango valleys, but those interested in this new organization feel that because of the great strides made by the iron and steel manufacturers of the above districts in the past few years, and the assurances made by some of the larger mills, such an organization will serve a very useful as well as profitable purpose. Wade A. Taylor, president of the company, has been very well known in iron and steel circles for many years, and C. H. Stewart, secretary and treasurer, was until very recently connected with the Deforest Sheet & Tin Plate Co., Niles, Ohio, as manager of sales.

Bi-Monthly Examinations

YOUNGSTOWN, Aug. 27.—To facilitate the work, the bi-monthly examinations of the sales sheets of the Western Bar Iron Association, Republic Iron & Steel Co., and Cleveland Rolling Mill Co. will be held at the close of the allotted 60 days, instead of on the tenth of the following month, as heretofore. Sale books for the examination will be closed on the twentieth of the final month. As a result of the change the bar-iron examination will not be held on the same day as the sheet and tin plate settlement. This latter examination will continue to be held on the tenth of September, November, January, March, May and July, during the remainder of this scale year.

Belated returns of sales sheets resulting from the mails being held up frequently because of congested conditions in the postoffices and on the railroads and the difficult task of the examiners of going through the mass of figures in the bar iron and sheet and tin-plate sections, caused the change.

The bar-iron examination will be held under the new plan either Wednesday or Thursday of this week in Youngstown.

India's Pig-Iron Output

The pig-iron output for India in 1916, according to the statistical report issued by the Iron, Steel and Allied Trades Federation (British), was as follows: Foundry iron, 127,324 tons; basic iron, 116,206 tons; specular iron, 1843 tons; direct castings, 780 tons; making the total 246,553 tons, against 270,027 tons in 1915 and 234,726 tons in 1914.

The new plant of the Curtiss Aeroplane & Motors Corporation, Buffalo, N. Y., will be 900 by 1300 ft., and will consist of 13 bays 100 ft. wide and 900 ft. long. The plant will employ 15,000 men. Manning, Maxwell, Moore, Inc., 119 West Fortieth Street, New York, is purchasing all equipment and supplies, Percy Brotherhood, vice-president, having special charge of this work.

Iron and Steel Markets

PRICES READJUSTING

Declines in Pig Iron and Billets

Plates Lower Also and Bars for 1918 Show Sharp Competition

Even with the Government announcement of steel prices known to be close at hand, the market has done some further readjusting on its own account. Pittsburgh has been the chief scene of activity, and the business done has been almost uniformly at the expense of prices.

In semi-finished steel, the high peaks of two months ago, reached in early delivery transactions, and which were far above the levels of contract steel, have been toppled over on very moderate business, while in steelmaking pig iron the reductions amount to \$2 on Bessemer and as much as \$4 on basic.

Finished material markets have shared little in the decline in Bessemer and basic iron and billets, chiefly because buying was so limited, but plates in particular are lower, 8c., Pittsburgh, being now common, representing a decline of \$20 per net ton.

The trade is much at sea as to the extent to which the readjustment will go, and is not helped by conflicting advices from Washington as to prices to Allied governments and the public. In the absence of power to enforce a uniform price for the three classes of buying, the Administration is represented as turning to the Senate bill for such control of iron and steel as has been provided for food and fuel. Meanwhile, sentiment grows in favor of substantially uniform prices to the Government, Allies, and the public, provided there is the anthracite type of adjustment rather than that in bituminous coal.

If the Government adopts the proposal to pay higher prices for finished steel to high-cost mills, pig iron may escape regulation except that due to the expected reduction in coke. No action on coke has been taken, though there are tentative estimates of a \$4 price at ovens.

Steel manufacturers are watching closely the working out of the export embargo policy, especially as related to British steel exports. With domestic steel capacity increasing, the mills want all the export business that is consistent with proper care of the Government's needs, and are averse to shipping war steel at low prices to Great Britain while that country is making highly profitable export shipments of commercial steel.

The status of steel makers on advisory committees at Washington still waits on the finding of the Department of Justice, and legislation may be required to clear up this situation. Meanwhile, an important conference between the general steel committee and the War Industries Board is held up.

Manufacturers of steel and munitions have made

efforts to release large numbers of men from the draft, and some important plants will suffer serious reduction in output if these efforts are not successful. At the same time it is known that very large additions to the Government demands upon the country's steel capacity will come out as soon as the price-fixing problem is disposed of.

At an important meeting with tin plate manufacturers at Washington, on Aug. 24, the food administrator presented figures indicating a shortage of about 2,000,000 boxes this year, and a greater shortage in 1918. It was decided to limit further the sale of tin plate to packers of non-perishable foods, also to cut down sales to jobbers. The Government is urging the sale of tin plates to canners for a year ahead, a practice the makers long ago discontinued, and which they are averse to resuming. A further manufacturers' conference is to be held in Pittsburgh this week.

In spite of the embargo on plates there is still considerable negotiating for export material. Indications point to some adjustment with Japan that will release a good-sized tonnage for that country.

With so great a volume of orders on their books, the mills are making little effort to take business, and prices have long been so profitable that there is no reason for special efforts to maintain maximum production, even to compensate for the holding up of rollings of embargoed steel. At the same time, reports of concessions are heard, as in the case of a large tonnage of bars, delivery in the first half of next year, which was placed at \$20 a ton below the recently established level.

The week's Pittsburgh transactions in Bessemer and basic iron, on which lower prices developed, included 1000 tons, 1500 tons and 2500 tons of Bessemer at \$50 at Valley furnace, two lots of 1000 tons at \$52 at furnace, and 5000 tons of basic iron at \$48. Throughout the country the market for foundry iron has been quieter than in many months. Furnace prices are not generally lower, but where resales are made they are at concessions.

In the Pittsburgh district more billets and sheet bars are offered than the market can readily absorb, and billets have sold in 1000-ton lots at \$75, while sheet bars can be had at less than \$80.

Pittsburgh

PITTSBURGH, Aug. 28 (By Wire).

The local situation in the steel trade has possibly shown a little more activity in the past week, but lower prices prevail. There have been some fair sized sales of Bessemer iron at \$50 to \$52, and basic at \$48 valley furnace, and also several sales of soft open hearth and Bessemer billets at \$75 per gross ton, Pittsburgh. In finished steel, no new business is being placed that can possibly be held off until the Government decides what prices are to rule on steel, with the result that the finished market is extremely dull. There is a good deal of nervousness over the outlook, the opinion being pretty general that a very drastic decline in prices on all grades of steel is likely to come just

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 29, 1917.	Aug. 22, 1917.	July 25, 1917.	Aug. 30, 1916.
No. 2 X, Philadelphia...	\$53.00	\$53.00	\$53.00	\$19.50
No. 2, Valley furnace...	52.00	53.00	53.00	18.25
No. 2, Southern, Cin'ti...	49.90	49.90	49.90	16.90
No. 2, Birmingham, Ala.	47.00	47.00	47.00	14.00
No. 2, furnace, Chicago*	55.00	55.00	55.00	18.00
Basic, del'd, eastern Pa.	50.00	50.00	50.00	19.75
Basic, Valley furnace...	48.00	52.00	52.00	18.00
Bessemer, Pittsburgh...	51.95	53.95	55.95	21.95
Malleable Bess., Ch'go*	55.00	55.00	55.00	19.00
Gray forge, Pittsburgh...	46.95	46.95	46.95	18.70
L. S. charcoal, Chicago...	58.00	58.00	58.00	19.75

Rails, Billets, etc., Per Gross Ton:

Bess. rails, heavy, at mill	38.00	38.00	38.00	33.00
O-h. rails, heavy, at mill	40.00	40.00	40.00	35.00
Bess. billets, Pittsburgh...	75.00	80.00	100.00	45.00
O-h. billets, Pittsburgh...	75.00	80.00	100.00	45.00
O-h. sheet bars, P'gh...	80.00	85.00	105.00	45.00
Forging billets, base, P'gh	100.00	115.00	125.00	69.00
O-h. billets, Phila...	90.00	90.00	110.00	48.00
Wire rods, Pittsburgh...	90.00	90.00	95.00	55.00

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Iron bars, Philadelphia...	5.185	5.185	4.659	2.659
Iron bars, Pittsburgh...	4.75	4.75	4.75	2.60
Iron bars, Chicago...	4.50	4.50	4.50	2.35
Steel bars, Pittsburgh...	4.00	4.00	4.50	2.60
Steel bars, New York...	4.695	4.695	4.669	2.769
Tank plates, Pittsburgh...	8.00	9.00	9.00	4.00
Tank plates, New York...	8.945	10.195	10.169	4.169
Beams, etc., Pittsburgh...	4.00	4.00	4.50	2.60
Beams, etc., New York...	4.695	4.695	4.669	2.769
Skelp, grooved steel, P'gh	4.00	4.00	4.00	2.35
Skelp, sheared steel, P'gh	6.00	6.00	6.00	2.45
Steel hoops, Pittsburgh...	5.75	5.75	5.25	3.00

Sheets, Nails and Wire,	Aug. 29, 1917.	Aug. 22, 1917.	July 25, 1917.	Aug. 30, 1916.
Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, P'gh	8.50	8.50	8.50	2.90
Sheets, galv., No. 28, P'gh	10.00	10.00	10.00	4.15
Wire nails, Pittsburgh...	4.00	4.00	4.00	2.60
Cut nails Pittsburgh...	4.65	4.65	4.65	2.60
Fence wire, base, P'gh...	3.95	3.95	3.95	2.55
Barb wire, galv., P'gh...	4.85	4.85	4.85	3.45

Old Material,

Per Gross Ton:	Aug. 29, 1917.	Aug. 22, 1917.	July 25, 1917.	Aug. 30, 1916.
Iron rails, Chicago...	\$44.50	\$40.50	\$41.50	\$18.75
Iron rails, Philadelphia...	45.00	45.00	45.00	20.00
Carwheels, Chicago...	31.50	29.00	32.00	11.50
Carwheels, Philadelphia...	34.00	34.00	35.00	15.50
Heavy steel scrap, P'gh...	34.00	31.00	36.00	16.00
Heavy steel scrap, Phila...	32.50	33.00	32.00	14.75
Heavy steel scrap, Ch'go	31.00	30.00	30.00	15.25
No. 1 cast, Pittsburgh...	30.00	30.00	32.00	14.50
No. 1 cast, Philadelphia...	33.00	33.00	35.00	16.00
No. 1 cast, Ch'go (net ton)	24.00	24.00	28.50	11.50
No. 1 RR. wrot, Phila...	45.00	45.00	48.00	20.00
No. 1 RR. wrot, Ch'go (net)	34.00	34.00	35.00	15.50

Coke, Connellsville, Per Net Ton at Oven:

Furnace coke, prompt...	\$12.00	\$15.00	\$11.00	\$2.90
Furnace coke, future...	10.00	10.00	10.00	2.50
Foundry coke, prompt...	13.50	14.00	13.00	3.50
Foundry coke, future...	12.50	12.50	10.00	3.50

Metals,

Per Lb. to Large Buyers:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York...	25.50	26.50	26.00	27.50
Electrolytic copper, N. Y.	25.50	26.50	26.00	27.25
Spelter, St. Louis...	8 12 1/2	8.50	8.50	8.75
Spelter, New York...	8 37 1/2	8.75	8.75	9.00
Lead, St. Louis...	10 42 1/2	10.50	10.25	6.50
Lead, New York...	10.55	10.62 1/2	10.25	6.50
Tin, New York...	61.50	61.75	62.50	39.25
Antimony (Asiatic), N. Y.	15.00	15.00	15.00	13.50
Tin plate, 100-lb. box, P'gh	\$11.00	\$10.00	\$12.00	\$5.75

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

as soon as the Government announces what prices it will pay for its own uses and for the Allies as well. In some cases, jobbers in order to reduce their stocks are offering material at considerably less than mill prices and for prompt shipment. Most of the new business being placed is coming from the Government and at prices from \$20 to \$40 per ton less than are being paid on the small amount of business being placed by domestic consumers. The fixing of the price of \$2 per ton for soft coal at the mine is taken to mean that probably the price of furnace coke will not be above \$5 per ton, and possibly less. The steel market is simply marking time and will continue to do so until the situation has cleared up and the Government steel prices are known. The mills are still filled up on orders on practically everything for the remainder of this year, but with a heavy cut in prices, cancellations would probably come rapidly and disturb rolling schedules that are now thought to be secure over the rest of this year. It is hoped that the Government will announce its prices not later than Sept. 1, and as soon as this is done, a very quick readjustment of market values to a lower basis is pretty sure to follow.

Pig Iron.—There has been more activity in Bessemer iron in the last few days, but considerably lower prices are now quoted. At the same time, the amount of Bessemer iron available for the market is limited and efforts in the last few days to buy certain quantities at about \$50 were unsuccessful, several furnaces that have a fair amount of Bessemer iron for quick shipment refusing to sell at less than \$52 to \$53 at furnace. We note authentic sales of Bessemer iron in the past few days as follows: 1000 tons at \$50, 1500 tons at \$50, 2500 tons at \$50 and two lots of 1000 tons each at \$52, Valley furnace, and all for September shipment except the 1500-ton lot, which is for delivery 500 tons per month starting September. We also note a sale of 5000 tons of basic iron at \$48, Valley furnace,

for prompt shipment. A sale of 1000 tons of malleable Bessemer iron is reported to have been made at \$53, Valley furnace, but this price is now regarded as being slightly above the market. Very little is being done in foundry or mill iron, but the Westinghouse Electric & Mfg. Co. has an inquiry out for a considerable quantity of iron for prompt shipment to its foundry at Cleveland. It is figured out that, with a prospective shortage of ore this fall and winter and the tremendous output of steel being made by the mills, there will be a shortage in the supply of Bessemer and basic iron and that present prices may possibly be maintained or even higher prices rule later on. Some eastern basic iron has been sold for delivery in the Pittsburgh district at slightly less than \$47 delivered. This is having the effect of depressing the price of local basic iron, as the demand is not very active. One lot of 2500 tons has been sold in which the phosphorus ran 0.50 to 0.60, the buyer applying the iron on a contract with a local consumer.

We now quote as follows: Standard Bessemer iron, \$50 to \$52; basic, \$48; No. 2 foundry, \$52; malleable Bessemer, \$52 to \$53; and gray forge, \$46 to \$47, all at Valley furnace. The freight rate for delivery in the Pittsburgh and Cleveland districts from valley furnaces is 95c. per ton.

Steel Rails.—Most of the 20,000 tons of 25-lb. rails for portable tracks to be laid in France have now been placed, and there is another order in the market for 1000 to 3000 tons of 35-lb. rails for the same railroad. New buying of light rails by domestic users is quiet and no domestic orders are being placed for standard sections. Prices on new light rails and standard sections are given on page 515.

Ferroalloys.—The new demand for ferromanganese and other ferroalloys is quiet, consumers being well covered over the remainder of this year, and some for first half of next year. It is said that a number of consumers of 50 per cent ferrosilicon have covered their needs for all of next year on the basis of \$130 delivered.

This price is being charged by the leading producer at Niagara Falls. Small lots of 50 per cent ferrosilicon are being sold for prompt shipment at about \$400; for first quarter of next year, \$375, and for first half of next year, \$350, delivered. We quote 18 to 22 per cent spiegeleisen at about \$75 delivered, this price being none too firm. The new demand for Bessemer ferrosilicon and silvery iron is quiet, as consumers are covered ahead for some time.

We quote 9 per cent Bessemer ferrosilicon at \$89, 10 per cent \$90, 11 per cent \$95, 12 per cent \$100, 13 per cent \$105, 14 per cent \$115, 15 per cent \$125, and 16 per cent \$135. We now quote 7 per cent silvery iron at \$84 to \$89, 8 per cent \$85 to \$90, 9 per cent \$86 to \$91, 10 per cent \$87 to \$92, 11 and 12 per cent \$88 to \$93. All f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, and Ashland, Ky., these furnaces having a uniform freight rate of \$2 per gross ton for delivery in the Pittsburgh district.

Structural Material.—The new inquiry is very quiet, but local fabricators are not bidding actively on new work, as they are filled up for some months ahead. The American Bridge Co. is fabricating 10,000 tons of structural steel for new steel buildings for the ship building plant to be built by the Federal Ship Building Co., at Hackensack Meadows, New Jersey. The contract of the McClintic-Marshall Co., for steel for extensions to sheet mill buildings of the Whitaker-Glessner Co. of Wheeling, W. Va., was for 1500 to 3000 tons instead of 15,000 to 20,000 tons as incorrectly given in this report last week, due to a telegraphic error. As noted last week, prices on beams and channels are easier, ranging from 4c. to 4.50c. at mill, depending on the quantity and delivery wanted.

Plates.—Of the recent order for 2997 narrow gage cars placed by the Government for shipment to France, the Pressed Steel Car Co. took 500 freight and 100 truck cars and the Standard Steel Car Co., 666 box and 165 gondolas. These will be built as fast as they can be turned out, and shipped as soon as completed. As noted last week, prices on plates are easier, and the supply available for prompt shipment over the next 60 to 90 days is larger than for some time. We now quote one quarter inch and heavier sheared plates at 8c. to 10c. at mill, and small lots from warehouse bring 12c. and higher, depending on the quantity and the sizes.

Sheets.—Very little new domestic business is being placed, but prices are holding fairly firm. Most of the sheet mills have their output sold up for the remainder of this year, and are refusing to quote on new inquiries. One mill recently turned down an order for No. 28 gage Bessemer sheets at 9c. and galvanized at 10.50c., stating it has no sheets to sell for this year. Prices on the different grades of sheets to the domestic consumers are showing signs of weakness, sales of Bessemer black, No. 28 gage, having been made as low as 8c. at mill. Prices on the different grades of sheets are given on page 515.

Billets and Sheet Bars.—Offerings of semi-finished steel in the forms of billets and sheet bars are still plentiful, and in fact more steel is being offered in the open market just now than it will absorb readily. We note two sales of 1000 tons each of 4 x 4 in. open-hearth billets at \$75 per gross ton, f.o.b. Pittsburgh. It is probable also that sheet bars could readily be had at \$80, Pittsburgh, or less. Prices on forging billets have declined sharply, and it is believed \$100, Pittsburgh, could easily be done on ordinary carbon forging billets for prompt shipment. There is no new inquiry for forging billets and no sales have been made for some time.

We now quote soft Bessemer and open hearth billets at \$75, and soft Bessemer and open hearth sheet bars at \$80 or less, maker's mill, Pittsburgh or Youngstown. We quote forging billets at nominally \$100 to \$110 per ton for ordinary sizes and carbons, f.o.b. Pittsburgh.

Tin Plate.—An important meeting of tin plate manufacturers was held at Washington, D. C., on Friday, Aug. 24, on request of Food Administrator Hoover. Every tin plate concern in the country was represented, and the meeting was held for the purpose of defining clearly the present situation in the plate trade as regards the prospect of the tin plate makers to meet the enormous demand that will come late this year and over all of next year, for coke plate for packing perishable

foods. The Government's present figures show there will be at the end of this year a shortage of about 2,000,000 base boxes of coke and terne plate. The demand for coke plate for packing perishable foods is getting larger very fast, particularly for plate for canning condensed milk. It was decided at this meeting to limit sales of tin plate to a still larger extent to packers of non-perishable foods and other products. It was further decided not to make any sales of tin plate for 1918 until October at least. The question of the tin plate makers selling their product for a year ahead was also discussed, and it is likely this custom may again be adopted, but the manufacturers do not favor it. The export inquiry for tin plate is heavy, notably from Italy. It is likely that very soon the Government will declare an embargo on tin plate for export subject to export license. It is likely the shortage in tin plate for 1918 will be larger than this year. Only one new tin plate mill is now being built, this being an 8-mill plant of the Liberty Steel Co., at Warren, Ohio, and it will not be a factor in the trade before February or March next year. Some mills report that they were working 17 turns per week, three turns per day up to and including Friday, and two turns on Saturday. As a result of this meeting, a general meeting of all tin plate manufacturers is to be held in the William Penn Hotel on Friday, August 31, for the purpose of discussing among themselves the questions that came up at the Washington meeting last week. The current demand for tin plate is quiet, and only small sales of primes from stock are being made at prices ranging all the way from \$11 to \$14 and \$16 per base box. Some mills are supplying plate from stock on contracts. It was also decided at the Washington meeting that sales of tin plate to jobbers should be stopped, except where the jobber can show that he is going to furnish the plate to packers of perishable foods. Prices in effect on terne plate are given on page 515.

Iron and Steel Bars.—The new demand for both iron and steel bars is not nearly so active as a month ago, and mills are catching up to some extent on back orders. Jobbers are not inclined to carry large stocks, as prices are showing an easier tendency and mills are able to make more prompt deliveries than for some time. The Government is taking very large quantities of steel bars, also some iron bars on the basis of 2.50c. at mill, fixed some months ago. Specifications against contracts from implement makers are fairly heavy, but from other consumers are slow. Mill prices in carloads and larger lots on iron and steel bars to the domestic trade are given on page 515.

Hoops and Bands.—The current demand is only for small lots for prompt shipment. Large consumers are covered over the remainder of this year on contracts and specifications are fairly active. We quote steel hoops in small lots for prompt shipment at 5c. to 5.50c. and steel bands 5c. to 5.25c. Extras on the latter as per the steel bar card.

Muck Bar.—The Kittanning Steel & Iron Co., Kittanning, Pa., is the only maker of muck bar in this district. We quote best grades, made from all pig iron at \$85 to \$90 per gross ton, Pittsburgh.

Wire Rods.—There is a fairly active demand for wire rods in small lots, and prices are holding firm. We note recent sales of probably 400 to 500 tons of soft Bessemer open-hearth rods at \$90 to \$95, maker's mill, high carbon rods made from special steels, range from \$110 to \$115, maker's mill. We note a sale of 200 tons of 0.60 per cent carbon and higher at about \$115, maker's mill. Prices on rods are given in detail on page 515.

Wire Products.—There is no change in the local situation in the wire and wire nail trades. The new demand is very dull and specifications are quiet. It is said the American Steel & Wire Co. is making quicker deliveries on wire and wire nails to the trade than for some months, and the fact that this company is selling nails and wire at \$16 per ton less than the prices quoted by the other mills means that it is taking most of the new business being placed. Jobbers are inclined to carry as

low stocks of nails and wire as possible, and believe that a readjustment in the prices to a lower basis may come in the near future. It is a fact that very little business was placed in wire nails at \$4 and bright basic wire at \$4.05, the independent mills working largely on contracts taken some time ago on the basis of \$3.50 for wire nails and \$3.55 for bright basic wire. Prices quoted on wire and wire nails by the independent mills, but which are now largely nominal, prices of the American Steel & Wire Co., being \$16 per ton less, are given on page 515.

Shafting.—Makers report the new demand is dull, especially from the automobile trade. The Government is placing fairly large contracts for shafting to go into light navy shells, fuses and nose pieces, and it is reliably stated that from 35 to 40 per cent of the present entire output of shafting is going to the Government either on direct or indirect orders. There is very little export business being placed and specifications are quiet. It is very evident the consuming trade is looking for lower prices on shafting in the near future. Discounts remain at 10 and 5 per cent off list, depending on the order.

Railroad Spikes and Track Bolts.—A local maker took 15,000 kegs of the recent order for 53,000 kegs of spikes placed by the Government for the American Railroad to be built in France, and another local maker took 7000 to 8000 kegs. Through the ship builders, the Government is placing heavy orders for boat spikes. These orders are placed in ship units, each unit requiring about 225 kegs of boat spikes. One local maker has taken contracts as low as two units, and as high as 10 units. The general demand for railroad spikes is dull, and specifications from the railroads on contracts placed some time ago are quiet. Several makers of boat spikes are not quoting to the general trade, but are conserving their output for Government needs. Prices on railroad spikes and track bolts are given in detail on page 515.

Nuts and Bolts.—The new demand is quiet, and specifications are only fairly active while prices are firm, it is the belief of consumers that lower prices on nuts and bolts in the near future are likely. It is stated that the Nut, Bolt and Rivet Institute, organized on April 28 last on the Eddy plan, is working out nicely. Recently quite a number of makers of nuts, bolts and rivets became members of the institute. Nothing is being done on export shipments. Discounts now in effect to the large trade are given on page 515.

Cold Rolled Strip Steel.—Specifications against contracts have fallen off a good deal and the new demand is quiet. Consumers believe that prices on cold rolled strip steel may be lower before long, as soon as the Government announces prices it will pay for steel. Manufacturers are still insistent that on any new contracts placed, specifications must be in their hands not later than Sept. 30. There have been some cancellations in contracts, due to expected lower prices.

On contracts, mills are quoting 9c. at mill, but on small current orders prices range from 10c. up to 12c. at mill. Terms are 30 days, less 2 per cent off for cash in 10 days when sold in quantities of 300 lb. or more.

Rivets.—A recent inquiry from the Government for 3500 tons of rivets for the navy department has not yet been placed, but will likely be divided among makers of rivets within the next few days. On the inquiry from the Emergency Fleet Corporation for 40,000 tons of rivets, estimated to be needed for the first 500 ships to be built all of this quantity has been placed by the ship contractors direct and the remainder is expected to be given out within a short time. It is said the price being paid by the Government for rivets is very satisfactory to the manufacturers and is close to prices being charged to domestic consumers. The current demand for rivets is fair, and specifications against contracts are reported active. We quote structural rivets at \$5.25 and cone head boiler rivets at \$5.35 per 100 pounds f.o.b. Pittsburgh, for delivery over the remainder of this year.

Wrought Pipe.—As yet the Manufacturers' Light & Heat Co. has not placed any part of the contract for line pipe and tubular products, details of which were given in this report last week. The Government is still a very

heavy buyer of pipe and other tubular products and all its orders have preference of the mills over all others, and are shipped out within 48 to 72 hours after receipt. As noted in this report many times before, pipe mills are filled up on lap weld iron and steel pipe over the remainder of this year, and on butt weld pipe, demands for which are quite heavy, can make shipments in eight to 10 weeks from date of order. Discounts on steel pipe being quoted by most of the independent mills, the prices of the National Tube Co. being much lower and also discounts on iron pipe as adopted by leading makers on July 1 are given on page 515.

Boiler Tubes.—Mills rolling iron and steel boiler tubes are filled up from six months or a year ahead and some orders for boiler tubes for shipbuilding programs have been placed by the Government for delivery late in 1918 and early 1919. Very heavy premiums in prices are being paid for fairly prompt deliveries on iron and steel tubes, and also on oil well supplies. The high prices ruling and the scarcity of oil country goods have stopped a good deal of prospective drilling. Nominal discounts on iron and steel tubes, giving prices that are much lower than those actually ruling, are given on page 515.

Coke.—For a week, the car supply in the coke region has been close to 100 per cent of car requisition, this being due to the fact that the coke operators on account of shortage of labor are not able to produce anything like their normal output of coke. There is a great shortage of men, both at the mines and at the ovens, and some producers of coke are not making more than 60 to 70 per cent. Prices of furnace coke have eased off in the past week, and on Monday there were sales of best grades at \$12.50 and on Tuesday at \$12.50 per net ton at oven. To-day (Wednesday) the market is still softer and is quoted at \$12. The fact that the Government has fixed the price of soft coal at \$2 at mine leads to the belief that the price of blast furnace coke will be fixed by the Government at possibly \$4.50, or not above \$5 per net ton at oven. It is figured that it takes three tons of coal to make two tons of coke, so that the cost of the coal would be \$3 and 60c. is figured on labor to put the coal into coke. A profit of 40c. per net ton on coke is figured by consumers as being eminently fair to coke producers. The Government price of coke is expected to come out next week. We now quote best grades of blast furnace coke for prompt shipment at \$12 to \$12.25 and on 72-hr. foundry coke at \$13.50 to \$14 per net ton at oven for prompt shipment. The *Connellsville Courier* gives the output of coke for the week ending Aug. 18 as 350,954 tons, an increase over the previous week of 9001 tons.

Old Material.—The local scrap market is looking better, prices on some grades being higher, notably on heavy steel melting scrap, borings and turnings. On some other grades, prices have shown no change, but the tone of the whole market is stronger. What has helped the market is the fact that the Carnegie Steel Co. last week purchased upwards of 25,000 tons of selected heavy steel scrap for which it is said to have paid close to \$38 per ton for most of it, delivered at Munhall, Pa. There has also been fair buying of borings and turnings, both for open-hearth use and also for blast furnace practice. To-day heavy steel melting scrap is quoted firm at \$34 to \$35 for delivery in the Pittsburgh district and as high as \$37 to \$38 for delivery at Massillon, Ohio, and several other scrap consuming points. A sale of 500 tons of borings to apply on a contract has been made at \$23, delivered, Pittsburgh. The railroad embargo is still on, but dealers who want cars for loading scrap to consumers who will take the scrap in and unload the cars promptly have very little trouble in getting cars. Dealers figure that shortage in ore this fall and winter is going to keep down the output of pig iron and keep prices high, and for this reason they expect to get better prices for their scrap than are now ruling. We note sales of 500 tons of borings at \$23, 1200 tons at \$22.30 and about 1500 tons of low phosphorus melting stock at \$42 up to \$45, delivered, the higher price having been paid for billet

and bloom shearings. Dealers now quote for delivery in the Pittsburgh and other points that take Pittsburgh freight rates per gross ton as follows:

Dealers quote for delivery in Pittsburgh and other consuming points that take Pittsburgh freight rates, per gross ton, as follows:

Heavy steel melting scrap, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh, delivered	\$34.00 to \$35.00
No. 1 foundry cast	30.00 to 31.00
Rerolling rails, Newark and Cambridge, Ohio, Cumberland, Md., and Franklin, Pa.	38.00 to 40.00
Hydraulic compressed sheet scrap	25.00 to 26.00
Bundled sheet scrap, s.d.s and ends, f.o.b. consumers' mill, Pittsburgh district	23.00 to 24.00
Bundled sheet stamping scrap	21.00 to 22.00
No. 1 railroad malleable stock	26.00 to 27.00
Railroad grate bars	18.00 to 19.00
Low phosphorus melting stock	42.00 to 45.00
Iron car axles	45.00 to 46.00
Steel car axles	45.00 to 46.00
Locomotive axles, steel	52.00 to 53.00
No. 1 busheling scrap	24.00 to 25.00
Machine-shop turnings	21.00 to 22.00
Cast iron wheels	31.00 to 32.00
Rolled steel wheels	36.00 to 37.00
*Sheet bar crop ends	41.00 to 42.00
Cast iron borings	22.00 to 23.00
No. 1 railroad wrought scrap	32.00 to 33.00
Heavy steel axle turnings	23.00 to 24.00
Heavy breakable cast scrap	24.00 to 25.00

*Shipping point.

Chicago

CHICAGO, Aug. 27.

It is admitted that the embargo on the export of plates has weakened the market in that product, especially where quick shipments are concerned, but it is not learned that less than 10c. has been done since the embargo became effective. By some steel men the embargo is regarded as the vital point in the present situation, as they want some of the export business and they believe the capacity of the country is sufficient to care for all, if the Government will indicate who should be served. They believe also that the Japanese situation can be adjusted by diplomatic means in a satisfactory manner. Some mills managed to fill their obligations up to the time the embargo became effective. The leading producer continues engaged mainly with Government orders. The Emergency Fleet Corporation has placed with a local mill 15,000 tons of plates and shapes to enter composite freight ships to be built by the Kelly-Atkinson Construction Co. The steel will be fabricated at Waukesha, Wis., and the ships assembled on the Mobile River. The question of coal supply is concerning some mills at lower Lake Michigan, relief being hoped for through priority being given to lake shipments. The general situation in iron and steel is unchanged, quiet being the rule, except for specialties. The Great Northern is seeking to buy 3000 kegs of spikes for late 1918 delivery. Government orders for shells and army supplies are a little more numerous in this section, as disclosed by the machinery trade reports. A Minnesota company has received an order for 2000 6-in. shells. The producers of pig iron are badly hampered by poor coke and insufficient quantities. Consumers have not yet resumed buying scrap in any considerable quantities, and the dealers continue the heaviest buyers to enable them to fulfil their commitments, to do which they are paying more than will melters.

Pig Iron.—So far as new business goes the market is at a standstill, except for occasional spot lots of a carload or two. In every direction prices are unchanged and there is no inquiry to report. Efforts to be bent toward getting shipments to consumers, and with the Southern producers in particular deliveries are proceeding slowly, the furnaces seemingly being unable to make good on their commitments. They lack the steady flow of supplies essential to maximum and proper operation, and to the inadequate supply of coke is added the further difficulties that come from poor coke. No further cutting of prices for resale lots is reported. It is doubtful whether buyers will become active before there is some move by the Government on the question of prices. Meanwhile melting is unquestionably going on at a liberal rate. The following quotations are for iron deliv-

ered at consumers' yards, except those for Northern foundry, malleable Bessemer and basic irons, which are f.o.b. furnace, and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, Nos. 1 to 4	\$38.00
Lake Superior charcoal, Nos. 5 and 6	66.50
Scotch and No. 1 soft or special	55.56
Northern coke foundry, No. 1	55.56
Northern coke foundry, No. 2	54.50
Northern coke foundry, No. 3	55.00
Northern high-phosphorus foundry	55.00
Southern coke No. 1 f'dry and 1 soft	54.00
Southern coke No. 2 f'dry and 2 soft	55.00
Malleable Bessemer	55.00
Basic	55.00
Low-phosphorus	\$90.00 to 93.00
Silvery, 8 per cent	82.75 to 83.00

Ferroalloys.—Since the activity reported a week ago there has been little or no activity in 80 per cent ferromanganese, the quotations for which are unchanged at \$400 for delivery this year, \$375 for the first quarter and \$350 for the second quarter. Ten per cent Bessemer ferrosilicon is held at about \$100, Jackson County, Ohio.

Plates.—It is generally admitted that the market for plates has been weakened by the export embargo on this material, especially for spot shipment, but sellers continue to quote 10c., Pittsburgh, or 10.189c., Chicago, and none admits he has sold under this level. Local producers managed to fill their obligations to Japanese buyers up to Aug. 15, when the embargo became effective but have, of course, large orders not filled. If makers were inclined to accept what are in reality options, they could fill their order books with contracts to deliver thousands of tons as soon as the embargo is lifted. The embargo is on material $\frac{1}{8}$ in. and over, and so includes heavy sheets. A local mill has arranged with the Government, on all except price, for furnishing 15,000 tons of plates and shapes to be used by the Kelly-Atkinson Construction Co., Chicago, for the building of composite vessels in the South. The material will be fabricated at Waukesha, Wis.

For Chicago delivery out of stocks jobbers quote 10c.

Structural Material.—But little private fabricated work is coming out, and that reported is small. The Government is the chief buyer. For the small lots which some mills have to offer, they quote 6.189c., Chicago. The Government is getting figures on a second lot of 10,000 freight cars for France, but the opinion is held in some quarters that they will not be placed right away. The lot would require about 40,000 tons of steel. The Whiting Foundry & Equipment Co., has placed with a seller not reported, 112 tons of girders for delivery at Harvey, Ill. The Elgin, Joliet & Eastern Railway Co. has placed with the American Bridge Co., 405 tons of miscellaneous steel work to be erected at Joliet, Ill.

Jobbers quote 5c. for material out of Chicago warehouses. The price was erroneously reported last week as 6c.

Bars.—Mild steel bars are quoted at 4.50c. to 5c., Pittsburgh, or 4.689c. to 5.189c., Chicago, but not much is being done. It can be repeated that the agricultural implement interests would like to buy, but prefer to await assurance as to the future stability of prices. Rail carbon bars are quoted at 4.25c. to 4.50c., Chicago, and tend toward quiet. Iron bars are held at 4.50c., Chicago.

We quote prices for Chicago delivery as follows: Soft steel bars, 4.50c.; bar iron, 4.50c. to 5c.; reinforcing bars, 4.50c. base, with 5c. extra for twisting in sizes $\frac{1}{2}$ in. and over and usual card extras for smaller sizes; shafting list plus 5 per cent to plus 10 per cent.

Wire Products.—Some makers report an easier trend so far as deliveries go, and one independent maker of nails and like products is soliciting orders from jobbers and retailers. It offers nails in single keg lots to carloads at wholesale prices. The leading interest continues to fill specifications on the basis \$3.20 for wire nails. While it finds some falling off in demand here or there, the aggregate is fully up to the mark, inasmuch as demand from some directions has increased. In view of the poor state of the building trade, the question is asked—Where do all the nails go? We quote as follows, on the basis of \$4., Pittsburgh, for nails (the quotation of the independent makers) to jobbers, per 100 lb.:

Plain fence wire, Nos. 6 to 9, base, \$4.189; wire nails, \$4.189; painted barb wire, \$4.339; galvanized barb wire,

\$5.03; polished staples, \$4.339; galvanized staples, \$5.039; all Chicago, carload lots.

Sheets.—The representative of an Ohio mill is offering galvanized sheets at 10.75c., Pittsburgh, or 10.939c., Chicago. Makers of black and blue annealed, that is the few who are offering sheets, quote 8.939c. to 9.189c. for both No. 10 blue annealed and No. 28 black. They find Government inquiry heavier than at any time heretofore, sheets being wanted for stoves, ranges, baking pans, etc. Jobbers' quotations are unchanged. An Eastern mill has booked over 300 tons of black sheets at 11c. Pittsburgh.

We quote for Chicago delivery out of stock, regardless of quantity, as follows: No. 10 blue annealed, 10c.; No. 28 black, 10c., and No. 28 galvanized, 11.50c.

Old Material.—The situation is a peculiar one for the reason that the dealers continue the chief buyers, and because they are willing to pay more than consumers, when they lack material wherewith to complete shipments against orders they took at high prices some time ago. Dealers have paid \$32 for carwheels, and up to \$43 for rerolling rails in the past few days. So far as the mills are concerned, the market is almost as quiet as it was two weeks ago, but the tone is undoubtedly better. Here and there a mill is short of scrap and has bought to fill in, one mill buying heavy melting steel at \$32. Shipments are falling off, indicating that orders are nearing fulfillment, and it is believed a new buying movement must set in shortly. When this occurs, it will straighten out a situation that, to say the least, is confusing, but the mills will hold off as long as they can, waiting for the Government to show its hand in the matter of price fixing. At the same time, if they run short, they must buy. Lists of moderate size have been issued by the Santa Fé, C. & B. & Q. and the Rock Island railroads, the last-named offering 1800 tons of rerollers. We quote for delivery at buyers' works, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Old iron rails	\$44.50 to \$45.00
Relaying rails	50.00 to 55.00
Old carwheels	31.50 to 32.50
Old steel rails, rerolling	41.00 to 42.00
Old steel rails, less than 3 ft.	40.00 to 41.00
Heavy melting steel scrap	31.00 to 32.00
Frogs, switches and guards, cut apart	31.00 to 32.00
Shoveling steel	30.00 to 31.00
Steel axle turnings	22.00 to 23.00

Per Net Ton	
Iron angles and splice bars	\$38.00 to \$39.00
Iron arch bars and transoms	41.00 to 42.00
Steel angle bars	31.00 to 32.00
Iron car axles	41.00 to 42.00
Steel car axles	41.00 to 42.00
No. 1 railroad wrought	34.00 to 35.00
No. 2 railroad wrought	31.00 to 32.00
Cut forge	31.00 to 32.00
Pipes and flues	22.50 to 23.50
No. 1 busheling	25.50 to 26.50
No. 2 busheling	17.50 to 18.50
Steel knuckles and couplers	35.00 to 36.00
Steel springs	37.00 to 39.00
No. 1 boilers, cut to sheets and rings	20.00 to 21.00
Boiler punchings	31.00 to 32.00
Locomotive tires, smooth	40.00 to 41.00
Machine-shop turnings	17.00 to 18.00
Cast borings	16.00 to 17.00
No. 1 cast scrap	24.00 to 25.00
Stove plate and light cast scrap	17.50 to 18.00
Grate bars	17.50 to 18.50
Brake shoes	19.00 to 19.50
Railroad malleable	30.50 to 31.50
Agricultural malleable	23.75 to 24.75
Country mixed scrap	18.00 to 19.00

Rails and Track Supplies.—Business in rails has been largely confined to the Government purchases of light rails wanted for use in France, although there also is inquiry for small lots of heavier rails for domestic industrial purposes, the last lots of which brought about \$90. Light rails for industrial use are quoted at \$95 to \$100 by an Eastern mill. The railroads are in the market for miscellaneous lots of brake-shoe keys, knuckle pins and like material, amounting in the aggregate to a fair-sized tonnage. The Great Northern is inquiring for 3000 kegs of spikes for late 1918 delivery. The quotations of the leading producer, with the exception, of tie-plates, follow, most of the prices being nominal:

Standard railroad spikes, 4.25c. base; small spikes, 4.50c. base; track bolts with square nuts, 5.25c., all in carloads, Chicago; tie plates, \$70 f.o.b. mill, net ton; standard section Bessemer rails, Chicago, \$38, base; open hearth, \$40;

light rails, 25 to 45 lb., \$65; 16 to 20 lb., \$66; 12 lb., \$67; 8 lb., \$68; angle bars, 3.25c., base.

Bolts and Nuts.—New business remains quiet. For prices and freight rates, see finished iron and steel, f.o.b. Pittsburgh, page 515. Jobbers' prices are unchanged.

Store prices are as follows: Structural rivets, 5.50c.; boiler rivets, 5.60c.; machine bolts up to $\frac{3}{8}$ x 4 in., 40-10; larger sizes, 35-5; carriage bolts up to $\frac{3}{8}$ x 6 in., 40-2½; larger sizes, 30-5; hot pressed nuts, square, \$3, and hexagon \$3 off per 100 lb.; lag screws, 50 per cent off.

Cast-Iron Pipe.—Government buying is letting up, but some is yet current. No municipal lettings are reported. Quotations are unchanged. The high level of prices is held responsible for the inactivity, but it is felt that if the present situation lasts much longer, municipalities must enter the market.

Quotations per net ton, Chicago, are as follows: Water pipe, 4 in., \$68.50; 6 in. and larger, \$65.50, with \$1 extra for class A water pipe and gas pipe.

Philadelphia

PHILADELPHIA, Aug. 27.

Definite ideas of the scope which Government work has taken among the steel and iron plants of the eastern Pennsylvania district have been given by the Midvale Steel Co. through Henry D. Booth, general superintendent, who appeared to-day before the Second Appeal Board and requested exemption from military draft of the 3500 eligible men among the Midvale force of 11,000 workers. Mr. Booth told of the Navy Department's desire to build 150 more torpedo boat destroyers and of the plan to have Midvale concentrate largely on guns for these destroyers and for the emergency merchant vessels. It is understood that Midvale will supply 75 guns monthly beginning Oct. 1, and that beginning Jan. 1 the number per month will be increased by 50 or more. Some reports have it that approximately 90 per cent of Midvale's forging capacity is to be devoted to the Government, and it is understood that the new Tacony Ordnance Corporation will be supplied, in part at least, with forging billets from Midvale. In addition to the ordnance requirements, more mill capacity in this district has been taken by orders from the Emergency Fleet Corporation for ship materials to be used in the new yards at Hog Island and elsewhere. While the preliminary orders do not involve any large tonnage, it is understood that heavy amounts are to be placed with mills here in the near future.

Pig Iron.—Reports of a decline in the Pittsburgh market formed the feature of a colorless day here, but accounts of basic selling in Pittsburgh at very low prices brought no sympathetic action. In the absence of fuller reports, local houses were inclined to the opinion that the iron so offered was re-sale material. "We can be prepared to hear of prices like this from time to time on lots of re-sale iron," said the head of one house, "but this does not affect fundamental conditions. As long as iron continues to be used at the present rate and production is no greater than it has been, iron will remain firm, all other conditions being equal." But while iron has remained firm, it has been decidedly dull. New business has been confined almost entirely to small lots for filling in, and this trading has been confined to the foundry grades. Virginia iron has been stagnant, and the steel-making grades remain on a nominal basis, no transactions in basic or standard low phosphorus having been reported. The sole inquiry of moment reported this week is one of 6000 tons for the Lenoir Car Works, Lenoir, Tenn. Six classifications are given, each of a special analysis, and apparently the inquiry excited little interest here. Largely nominal prices on the standard brands, prompt delivery in buyers' yards, are:

Eastern Penna. No. 2 X foundry	\$53.00 to \$55.00
Eastern Penna. No. 2 plain	52.50 to 54.50
Virginia No. 2 X foundry	54.25 to 55.25
Virginia No. 2 plain	53.75 to 54.75
Basic	50.00 to 52.00
Standard low phosphorus	90.00

Coke.—Spot fuel was quoted to-day at \$13.50 to \$14.50, with supplies scanty. It is understood here that the Government contemplates coke purchases on its own account at prices said to approximate \$3.50 for foundry and \$3 for furnace. There was some disposition to re-

gard these figures as the probable basis of the price to be set for the general public, and there was more or less speculation as to the effect such prices would have. It was given out in the fuel markets here to-day that while \$2 net at the mine, as fixed by the Government, is the price for run-of-mine bituminous, there have been no actual sales at that price, as the mines have been confining themselves to shipping tonnage against contracts.

Billets.—Semi-finished materials available for the general buyer are rare articles among the Eastern mills, their own requirements and those of established customers with contracts taking the output. On the basis of the last large sales the price of re-rolling open-hearth billets is \$110, with \$125 for forging billets. It is, however, significant that a small tonnage of open-hearth slabs has been sold here at \$85 during the week.

Sheets.—The situation in sheets virtually duplicates that in billets, mills being unable to consider any new trade and basing all transactions on 8½c. for No. 10 blue annealed in the case of occasional small orders accepted from old customers.

Structural Material.—Perhaps no better idea of conditions can be given than to say that inquiries for odd lots in quantities of eight or 10 tons constitute the "new business" nowadays, with anywhere from 5c. to 6c., Pittsburgh, being asked, though one interest has been getting 6.10c., mill, for anything it had to spare. There are no inquiries of moment in prospect.

Plates.—Pressure on the plate mills is still strong, though the embargo on export business has had the effect of hastening work on domestic orders, so that, in some cases, domestic lots are being rolled in August instead of in September, as the original schedule contemplated. With the large makers, the closing of the export trade has had no other effect to date than this, but a continuance of the embargo to Japan, for example, is likely to bring about easier prices for the output of small producers shut off from their expected foreign trade. At least this is a view expressed here and it has taken weight in view of the fact that there is an offering in this market of plates yet to be rolled, in quantities up to 500 tons a month, at 9½c., delivered. These plates are ¼ in., ⅜ in. and ½ in., 10 to 12 ft. long and up to 45 in. wide. Meanwhile, large makers report turning down old customers owing to inability to meet the combined demands of the Government and private buyers. One mill reports declining 6000 tons of tank for which 10c., mill, was offered for first quarter shipment, and refusing to consider an inquiry of 20,000 tons of structural plates for export. Another inquiry, just presented, is for 16,000 tons of Lloyds hull steel. The large makers maintain prices unchanged, save as affected by the recent readjustment of Pittsburgh freight rates, the bases being 10.185c., Philadelphia, for tank and 12½c., mill, for boat steel.

Iron and Steel Bars.—Satisfactory specifications on soft steel bar contracts at 4½c., Pittsburgh, are reported by one large maker, who reports no business outside of contracts. Other ideas of price run around 5c. or 5½c., with no business done. Specifications on bar iron at 4¼c., Pittsburgh, are likewise reported to be heavy this week by one interest, with another busy maker holding at 5c., Pittsburgh, for carload lots as the bottom.

Ferroalloys.—Ferromanganese is stronger, if anything, though the price remains at \$400 for delivery over the remainder of the year, with \$375 for first quarter and \$350 for second quarter, though \$375 is now being heard for the latter delivery. Spiegeleisen is holding at previously reported prices, ranging around \$85, furnace.

Old Material.—Sales of heavy melting steel in Pittsburgh last week had the effect of buoying up the local market, but the revival was short-lived and the trade is again quiet, with virtually the whole price list nominal. The embargo is having the effect of delaying shipments, and some houses report being anywhere from 10 days to two weeks behind. Uncertainty over the Government price-fixing program has had the effect of removing for

the present any bullish feeling there may have been, and the outlook for the immediate future indicates rather spotty business. Prices per gross ton delivered in the eastern Pennsylvania district are about as follows:

No. 1 heavy melting steel.....	\$32.50 to \$33.50
Steel rails, rerolling	43.00 to 45.00
Low phosphorus heavy melting.....	40.00 to 43.00
Old iron rails	45.00 to 47.50
Old carwheels	34.00 to 35.00
No. 1 railroad wrought	45.00 to 47.50
No. 1 forge fire	22.00 to 23.00
Bundled sheets	22.00 to 23.00
No. 2 busheling	16.00 to 17.00
Machine shop turnings (for blast furnace use)	19.00 to 20.00
Machine shop turnings (for rolling mill use)	21.00 to 22.00
Cast borings (for blast furnace use)	19.00 to 20.00
Cast borings (clean)	22.00 to 23.00
No. 1 cast	33.00 to 34.00
Grate bars	20.00 to 21.00
Stove plate	21.00 to 22.00
Railroad malleable	32.50 to 35.00
Wrought iron and soft steel pipe (new specifications)	29.00 to 31.00

Cleveland

CLEVELAND, Aug. 28.

Iron Ore.—The work of cutting down the iron ore requirements for the season for inland furnaces is about completed, and it is believed that by following the plan of adjusting shipments to consumers so that none will get more ore than actually needed all will be furnished with sufficient for actual needs. Lake shipments are very heavy and the August movement may break the July record. The car supply at Lake Erie docks is better, doubtless to some extent because of the preference now given by direction of the Government to coal shipments for the Northwest, making more cars available for ore. The coal movement is very heavy, shipments to the Northwest last week having amounted to 977,511 tons. We quote ore prices as follows, delivered lower Lake ports: Old range Bessemer, \$5.95; Mesaba Bessemer, \$5.70; old range non-Bessemer, \$5.20; Mesaba non-Bessemer, \$5.05.

Pig Iron.—The market continues quiet. There is not enough business coming out to test prices, and producers are disposed for the present to maintain recent quotations. Many consumers, who have not yet purchased for their first half of next year's requirements are awaiting possible action by the Government regulating prices. Lake furnaces continue to quote foundry iron at \$55, at furnace, for No. 2, in spite of the fact that this grade is being offered at \$53 in the Valley, and several recent orders placed by Cleveland and nearby consumers have gone to Valley furnaces because of the lower prices. A foundry near Cleveland has purchased 3000 tons of foundry iron for the last quarter and first half at about \$54 for No. 2. The Westinghouse Electric & Mfg. Co. came into the market during the week for additional iron for early shipment for its Cleveland plant, and is understood to have secured at least a portion of its required tonnage from a Valley furnace. Several small lot sales of off-grade basic iron, aggregating 1400 tons, are reported at \$47 and higher. Quotations on Virginia iron are unchanged at \$51 for furnace, or \$54.20 delivered, for No. 2, at which a small additional tonnage has been sold. Southern iron is inactive and is nominally \$50, Birmingham, for No. 2 for this year's delivery, with a range from \$45 to \$50 for the first half. The foundry melt continues very heavy and foundries are crowding furnaces for deliveries. We quote, delivered Cleveland, as follows:

Bessemer	\$50.95 to \$53.95
Basic	49.95 to 52.95
Northern No. 2 foundry	53.95 to 55.30
Southern No. 2 foundry.....	51.00 to 54.00
Gray forge	48.95 to 50.95
Ohio silvery, 8 per cent silicon.....	88.62
Standard low phos. Valley furnace.....	85.00

Coke.—The market is inactive and weaker. Standard makes of Connellsville foundry coke are quoted at \$13.50 to \$14 per net ton at oven for prompt shipment. Considerable inquiry is coming from far-distant points, having freight rates that are prohibited for the shipment of Connellsville coke.

Finished Iron and Steel.—Business in finished lines is quiet, new orders and inquiries being confined almost wholly to Government requirements. The order for fabricating the portable track for use by the Government in France has been placed with the Lakewood Engineering Co., Cleveland. This represents about 23,000 tons of 25-lb. rails. These rails have been divided among a number of independent mills. It is understood that an agreement has been reached under which additional portable track will not be purchased by France until our Government's requirements are partly supplied. In semi-finished steel we note the sale of a round lot sheet bars for the fourth quarter delivery at about \$90. In structural lines deliveries have eased up owing to the small amount of new building work. An inquiry has come out for 2200 tons of steel bars for a new reinforced concrete viaduct in Akron. The plate market is quiet and local prices are unchanged at 9c. to 10c., Pittsburgh. Hard steel bars are not firm, being quoted at 4c. to 4.25c. at mill. Local mills quote bar iron at 4.50c. The sheet market is not active, many buyers holding up the placing of orders, pending possible action by the Government reducing prices. A Youngstown mill, which has been out of the market for some time, is offering this week a round tonnage of sheets at 8.50c. for No. 28 black and No. 10 blue annealed, and 10.50c. for No. 28 galvanized. Warehouse prices on steel bars now range from 4.50c. to 5c. and on structural material from 5c. to 5.25c. Warehouses quote plates in narrow sizes at from 7c. to 9c., and blue annealed sheets at 9.50c.

Bolts, Nuts and Rivets.—New orders and specifications for bolts, nuts and rivets have quieted down and little new inquiry is coming out at present. Rivets are unchanged at 5.25c., Pittsburgh, for structural and 5.35c. for boiler rivets for this year's delivery. Bolt and nut discounts are as follows, round lot buyers being allowed from 5 to 10 per cent discount from these prices:

Common carriage bolts, $\frac{3}{4}$ x 6 in., smaller or shorter, rolled thread, 35 off; cut thread, 30 and 5, larger or longer, 20. Machine bolts, with h. p. nuts, $\frac{3}{4}$ x 4 in., smaller or shorter, rolled thread, 40; cut thread, 35; larger and longer, 25. Lag bolts, cone point, 40. Square h. p. nuts, blank, \$1.90 off list; tapped, \$1.70 off list. Hexagon, h. p. nuts, blank, \$1.70 off; tapped, \$1.50 off. C. p. c. and t. hexagon nuts, all sizes, blank, \$1.25 off; tapped, \$1 off. Cold pressed semi-finished hexagon nuts, 50 and 5 off.

Old Material.—The market shows more life than for several weeks and has taken on a slightly firmer tone. This is apparently due to the fact that dealers look for an improvement in the demand during September when they expect the mills to come in the market. More scrap is being offered than for some time, but dealers are not trying to force sales by concessions. Practically all trading is between dealers who are still covering on old contracts. There is a wide spread in quotations on heavy melting steel which is about \$2 a ton higher than a week ago. We note the sale of a 1000-ton lot to a dealer at \$36 for Canton delivery. Busheling is somewhat firmer, 400 tons having sold at \$27. Sales of cast scrap have been made at the same price. Borings and turnings are 50c. a ton higher. We quote, f.o.b. Cleveland, as follows:

Per Gross Ton	
Steel rails	\$32.00 to \$33.00
Steel rails, rerolling	44.50 to 45.50
Steel rails, under 3 ft.	37.00 to 38.00
Iron rails	42.50 to 43.50
Steel car axles	26.00 to 26.50
Heavy melting steel	34.00 to 36.00
Carwheels	30.50 to 31.50
Relaying rails, 50 lb. and over	49.50 to 54.50
Agricultural malleable	23.50 to 24.50
Railroad malleable	32.00 to 33.00
Light bundled sheet scrap	23.50 to 24.50
Per Net Ton	
Iron car axles	\$46.50 to \$47.00
Cast borings	18.00 to 18.50
Iron and steel turnings and drillings	17.50 to 18.00
No. 1 busheling	27.00 to 28.00
No. 1 railroad wrought	40.50 to 41.50
No. 1 cast	27.00 to 28.00
Railroad grate bars	21.00 to 22.00
Stove plate	20.50 to 21.50

E. N. Breitung & Co., conducting a business of ore mining with offices at Marquette, Mich., and Cleveland, announces that H. L. Kaufman has withdrawn from the partnership and that the business will be continued under the same firm name by Mary Kaufman and E. N. Breitung.

Cincinnati

CINCINNATI, Aug. 27.—(By Wire).

Pig Iron.—Offerings of Southern foundry iron for this year's shipment are being absorbed very slowly. Consumers are sticking to the policy of buying only a few carloads as urgently needed. Rumors are circulated that resale iron has been offered below the recent minimum quotation of \$47 Birmingham, without bringing in any orders of consequence. The foundrymen are puzzled over the situation, and as long as the present uncertainty exists, they are not going to make any large purchases for future shipment. A constant stream of complaints is pouring in as to the slow shipment of iron from both southern and northern furnaces on old contracts. One excuse is the car shortage, but the main reason for these delays is the scarcity of iron. Several furnaces in the south suspended operations a few days during the present month, and two have blown out for repairs. In the Ironton district, one large producer has had more than the usual amount of hot weather trouble at one of its large furnaces, and it will probably close down for an overhauling within the next few days. A Northern Ohio melter bought last week approximately 2500 tons of mixed northern and southern foundry iron for shipment through the remainder of the year and into the first half of 1918. The northern foundry iron is reported to have brought \$54, Ironton, but information is lacking as to the price for the southern iron. Ironton producers are quoting \$55 for this year, but are unable to take on any business of consequence. The Ohio silvery irons are in fair demand, but the price schedule has not been maintained on future contract business. An inquiry from St. Louis calls for 500 tons of low phosphorous iron for this year's shipment. Based on freight rates of \$2.90 from Birmingham and \$1.26 from Ironton, we quote, f.o.b. Cincinnati, for 1917 shipment, as follows:

Southern coke, No. 1 f'dry and 1 soft.	\$51.40 to \$52.40
Southern coke, No. 2 f'dry and 2 soft.	49.90 to 50.90
Southern coke, No. 3 foundry.	49.40 to 50.40
Southern coke, No. 4 foundry.	48.90 to 49.90
Southern gray forge	48.90 to 49.90
Ohio silvery, 8 per cent silicon.	57.26 to 59.26
Southern Ohio coke, No. 1.	56.26 to 57.26
Southern Ohio coke, No. 2.	56.26 to 57.26
Southern Ohio coke, No. 3.	55.26 to 56.26
Southern Ohio malleable Bessemer.	56.26 to 57.26
Basic, Northern	56.26 to 57.26
Lake Superior charcoal	56.75 to 57.75

(By Mail)

Finished Material.—Mill business is slow as far as bars and structural material is concerned, chiefly due to the inability of the mills to make prompt shipments. The warehouse trade is holding up well, with reinforcing concrete bars and small structural shapes leading in the demand. Cold rolled shafting is in a little better demand and is quoted from jobbers' stocks at 15 per cent plus the list. Iron and steel bars are unchanged at 5c. from stock and 5.05c. for twisted steel bars. Machine bolts $\frac{3}{4}$ x 4-in. and smaller are quoted at 40 per cent discount; larger and longer, 30 per cent discount. Plates $\frac{1}{4}$ -in. and heavier are unchanged at 10c. from stock and the store price of No. 10 blue annealed sheets is 10c. The nearby mills are quoting a nominal price of 8.65c. for No. 28 black sheets and 10.65c. for No. 28 galvanized. Some business is reported at these figures. Wire nails are slow and the jobbers' quotation is \$3.90 per keg base and on barb wire 5c. a lb. The leading nail maker is quoting \$3.20 per keg base, Pittsburgh, but is making no sales at this figure. Independent mills are quoting around \$3.90 to \$4.

Coke.—Prompt foundry coke is easing off some in all producing districts. A few carloads of Connells-ville 72-hr. coke brought only \$14.50 per net ton at oven, as against \$15.50 to \$16 two weeks ago. Very few deals have come to light, and the oven operators are not trying to take on any new business, but are devoting their energies to moving shipments on old contracts. Considerable complaint has been made by foundrymen as to the slowness in which the fuel is moved, but the producers give as an excuse the grow-

ing labor shortage, together with the inadequate car supply. Contract prices on 72-hr. coke have not been affected and from \$11.50 to \$12.50 at oven is quoted in the different producing districts. New River operators are asking as high as \$13. No prices are out on furnace coke and the inquiry is limited to a few carloads for domestic use. A nominal contract price would be from \$9 to \$10 at oven.

Old Material.—Business is falling off and prices are soft. Dealers are buying sparingly, most purchases on their part now being odd lots of different kinds of scrap to fill in on contracts made some time ago. Railroad offerings show neither any decline nor increase. Mills in the Pittsburgh district are urging forward scrap bought by them before the recent advance. Frequent complaints are registered over the shortage of cars in which to move scrap material. The following are dealers' prices f.o.b. at yards Cincinnati, and Southern Ohio:

Per Gross Ton	
Bundled sheet scrap	\$20.00 to \$20.50
Old iron rails	34.00 to 34.50
Relaying rails, 50 lb. and up.....	45.50 to 46.00
Re-rolling steel rails	37.00 to 37.50
Heavy melting steel scrap	33.00 to 33.50
Steel rails for melting.....	33.00 to 33.50
Old carwheels	30.00 to 30.50
Per Net Ton	
No. 1 railroad wrought.....	\$32.00 to \$32.50
Cast borings	13.50 to 14.00
Steel turnings	13.50 to 14.00
Railroad cast	22.50 to 23.00
No. 1 machinery cast	24.50 to 25.00
Burnt scrap	14.50 to 15.00
Iron axles	44.50 to 44.50
Locomotive tires (smooth inside)....	37.00 to 37.50
Pipes and flues	18.00 to 18.50
Malleable cast	24.50 to 25.00
Railroad tank and sheet	16.00 to 16.50

Birmingham

BIRMINGHAM, ALA., Aug. 28.—(By Wire.)

Due to the efforts of Secretary of Labor Wilson, the strike of coal miners of the United Mine Workers of America has been settled, the miners receding from their demand for the recognition of the union, while they are granted check weighman and local rights to discuss grievances. A few orders for pig iron are being received. Prices are maintained at \$48 to \$50 for delivery through next year.

(By Mail)

Pig Iron.—Quotations for pig iron are being maintained at \$50, No. 2 foundry and basic for this year delivery and \$40 for next year, though the lull in the buying which began four weeks ago is still pronounced. Consumers are urging prompt deliveries still on iron, orders for which were placed several months ago, indicating there is need for the product. The lull in the buying is occasioned by an expectancy that the Government is going to fix prices and also control the market. This has caused considerable apprehension among the manufacturers, an intimation of the sharp cutting of prices by the Government being shown the past week when coal prices, f.o.b. mines, were announced by President Wilson. Coal operators in the Birmingham district hastened to Washington and will enter a formal protest, claiming that if there is not a revision in the prices there will be cessation of coal mine operations. Curtailment of coal production would affect the coke and pig-iron production besides operations of foundries and machine shops. Pig-iron production for August will show an increase, it is expected, over the figures of the previous two months. The No. 2 furnace of the Shelby Iron Co. is doing well. The Trussville furnace belonging to the Birmingham Trussville Iron Co. will be blown in Sept. 8 if there are no labor troubles in the district. Iron deliveries are being speeded up some to avoid a car shortage when grain movements become heavy. Embargoes are reported again toward Ohio River gateway points, but it is believed this condition will not continue long. Prompt delivery prices obtain in the South as follows:

No. 1 foundry and soft.....	\$50.50 to \$51.50
No. 2 foundry and soft.....	50.00 to 51.00
No. 3 foundry	49.50 to 50.50
No. 4 foundry	49.25 to 50.25
Gray forge	49.00 to 50.00
Basic	50.00 to 51.00
Charcoal	55.00 to 56.00

Cast-Iron Pipe.—Government rush orders for cast-iron pipe for use at cantonments have about been delivered and a number of municipal orders are still coming in. No changes in cast-iron pipe prices are noted, 4 in. at \$63, 6 in. and upward \$60.

Coal and Coke.—Agitation looking to a strike by the members of the United Mine Workers of America, Alabama District No. 20, upon refusal of the Alabama Coal Operators' Association to grant recognition, a wage scale and other demands, has disturbed the production of coal in this district for some little time. Secretary of Labor W. B. Wilson came to Birmingham from Washington last Thursday, remained over Sunday and held conferences with the two interests in the hope of bringing about an amicable settlement. A strike of a week's duration would hamper operations in various lines in this district. The strike was scheduled for Aug. 20 but was postponed pending the visit to the district of the Secretary of Labor. The union claims a membership of 23,000. Coke producers have been on the anxious seat for the past few weeks also as to the strike discussion. No business has been sought and no consideration given to inquiries. Spot coke could sell at \$15 with ease if there was an inclination to sell. The quotations for coke are from \$10 to \$12.50 for foundry and \$6 to \$10 for furnace coke.

Old Material.—Dealers in scrap iron and steel are hopeful there will be a recovery in the immediate future. Quotations of scrap are holding up fairly well. Heavy melting steel has sold as high as \$20.25 again in this district. Quotations are as follows:

Old steel axles	\$32.00 to \$33.00
Old steel rails	25.00 to 26.00
No. 1 wrought	26.00 to 27.00
Heavy melting steel	19.00 to 20.25
No. 1 machinery	20.00 to 21.50
Car wheels	23.00 to 24.00
Tramcar wheels	20.00 to 21.00
Stove plate	15.00 to 16.00
Shop turnings	11.00 to 12.00

The Southern Manganese Co., at Anniston, has put in operation its seventh furnace. This concern is allied with the Anniston Ordnance Co. Theodore Swann, president of the Manganese company, announces that consideration is being given to the construction of a big manganese furnace between Birmingham and Bessemer, a few miles from Birmingham.

The American Casting Co. in Birmingham has received an order for \$1,000,000 worth of iron culverts for railroad repairing and construction in France. The order was placed through the United States Government.

St. Louis

ST. LOUIS, Aug. 27.

Pig Iron.—Activity in the pig iron market is largely confined to a search for special lots to meet particular requirements, with some call for small quantities for immediate shipment at premium prices. No individual transactions were reported during the week of any size, but the prices developed were all in line with the last previous figures and were firmly held. The local furnace is so far sold ahead as to not figure in the business at present, and, incidentally, its operations have been somewhat interfered with by a strike, which is in fair way of settlement. All consumers are crowding delivery and this is particularly true of recent spot sales. Representatives are not particularly anxious for new business, as they are without supplies because of the state of the furnaces for which they act. No. 2 Southern foundry, Birmingham basis, is held at a range of from \$47.50 to \$50, while no Chicago or Iron-ton pig is at present available in this market and therefore is without quotation. During the week there were sales of 12 to 13 per cent ferrosilicon as high as \$107.50 for a small lot and also a small sale of 4 per cent silicon, Birmingham basis, at \$52 per ton. Some consignment iron has appeared in this market and has sold readily at market figures.

Coke.—Coke for spot delivery has been available in small lots in this market at \$15 Connellsville, for best selected 72-hr. grades, while deferred shipments, Octo-

ber delivery, have been closed at about \$14. By-product coke has been sold in this market from one or two outside sources at prices more favorable than the Connells-ville figures, but the local producer is sold up too far ahead to cut any figure at the present time.

Finished Iron and Steel.—In finished products no new business is appearing, the attitude of mill representatives not giving consumers any encouragement. The chief activity is shown in the pressure of the consumers for material already contracted for, and there appears to be no let-up on this. For stock out of warehouse we quote as follows: Soft steel bars, 4.55c.; iron bars, 4.50c.; structural material, 5.05c.; tank plates, 10.05c.; No. 10 blue annealed sheets, 10.05c.; No. 28 black sheets, cold rolled, one pass, 10.35c.; No. 28 galvanized sheets, black sheet gage, 11.75c.

Old Material.—In scrap there has been so little activity that not sufficient transactions have taken place to establish a market. In consequence all quotations are rather estimates of value rather than definite figures. No buying is being done save in the case of dealers who have contracts to fill and who may need a little of some special material to meet the requirements of the customer. The car situation is improving and there is not so much complaint on this score. The general feeling seems to be that while the market has about reached bed rock there may still be some little recession before a really active situation develops. Dealers will neither buy nor sell, with the exception already noted, because of the inability to determine a price. Lists out during the week include one of 2000 tons from the Burlington, 3500 tons from the Great Northern, 500 tons from the Monon and some small lists from industrial concerns. We quote dealers' prices, f.o.b. customers' works St. Louis industrial district, with the qualification already noted as to the figures given:

Per Gross Ton	
Old iron rails	\$39.00 to \$39.50
Old steel rails, re-rolling	37.50 to 38.00
Old steel rails, less than 3 feet	37.00 to 38.00
Relaying rails, standard sections, subject to inspection	50.00 to 55.00
Old car wheels	28.00 to 28.50
No. 1 railroad heavy melting steel	29.00 to 30.00
scrap	27.00 to 27.50
Heavy shoveling steel	26.00 to 26.50
Ordinary shoveling steel	26.00 to 26.50
Frogs, switches and guards cut apart	29.00 to 30.00
Ordinary bundled sheet scrap	18.50 to 19.00
Heavy axle and tire turnings	20.00 to 21.00

Per Net Ton	
Iron angle bars	\$36.50 to \$37.50
Steel angle bars	29.00 to 30.00
Iron car axles	39.00 to 40.00
Steel car axles	39.00 to 40.00
Wrought arch bars and transoms	39.00 to 39.50
No. 1 railroad wrought	33.00 to 33.50
No. 2 railroad wrought	30.00 to 30.50
Railroad springs	30.00 to 30.50
Steel couplers and knuckles	39.50 to 40.50
Locomotive tires, 42 in. and over, smooth inside	38.50 to 39.50
No. 1 dealers' forge	24.00 to 24.50
Cast iron borings	15.00 to 15.50
No. 1 busheling	24.00 to 24.50
No. 1 boilers, cut to sheets and rings	19.50 to 20.00
No. 1 railroad cast scrap	22.50 to 23.50
Stove plate and light cast scrap	16.50 to 17.00
Railroad malleable	29.00 to 30.00
Agricultural malleable	22.00 to 22.50
Pipes and flues	19.50 to 20.00
Heavy railroad sheet and tank scrap	18.00 to 18.50
Railroad grate bars	16.50 to 17.00
Machine shop turnings	15.00 to 15.50
Country mixed scrap	14.50 to 15.50

British Steel Market

Sellers of Ferromanganese Scarce—Maximum Tin-Plate Price Officially Fixed

LONDON, ENGLAND, Aug. 29—(By Cable).

The pig-iron market is generally firm. The output of basic iron is gradually increasing and the demand for hematite iron is intense. An official order has been issued confirming the fixed price of 30s. per basis box, net at works, for tin plates and demand has increased. American semi-finished steel is idle. Ferromanganese is strong and unchanged with sellers lacking. We quote as follows:

Tin plates, coke, 14 x 20; 112 sheets, 108 lb., f.o.b. Wales. maximum, 30s.

Ferromanganese, £45 nominal.

Ferrosilicon, 50 per cent, c.i.f., £35 upward.

On other products control prices are as quoted in THE IRON AGE, of July 19, p. 171.

Buffalo

BUFFALO, Aug. 27.

Pig Iron.—Although there is a considerable volume of inquiry coming in every day, it seems evident that a good proportion of the quotations asked for are desired simply for the purpose of sounding the market, as very few actual orders are being placed. In fact, judging by sales made, the market is in an absolutely quiet and stagnant condition. Furnacemen are not expecting much buying until the price question, which is still awaiting final action by the Government, is determined. When this question is settled, however, it is thought not unlikely the banked up demand released will be large; more than furnaces will be able to fill completely until well into next year. As furnaces are crowded with shipments on existing contracts to the end of the year, this lull is a situation welcomed by producers, as they are more concerned in getting iron shipped out on present obligations than in taking on new commitments. Among the inquiries noted for the week were one of 1000 tons of foundry grades for a New England melter and one of 2000 tons still before the market from an eastern Canadian foundry. Prices, which are largely nominal, remain unchanged from last week, and are as follows, f.o.b. furnace, Buffalo, for 1918 delivery:

High silicon irons	\$55.00 to \$56.00
No. 1 foundry	54.00 to 55.00
No. 2 X foundry	53.00 to 55.00
No. 2 plain	52.00 to 54.00
No. 2 foundry	51.00 to 53.00
Gray forge	51.00 to 53.00
Malleable	54.00 to 55.00
Basic	54.00 to 55.00
Lake Superior charcoal, f.o.b. Buffalo	55.00 to 60.00

Old Material.—Although the local market is not very active, inquiries are coming in from Pittsburgh and Valley districts for heavy melting steel, No. 1 busheling scrap, machine shop turnings, heavy axle turnings, cast borings and old car wheels. As high as \$36, delivered at Pittsburgh and Valley points for heavy melting steel, has been offered. Some sales have been made; but stock conditions at the present time are such that regardless of prices offered, dealers are averse to contracting, except for the quantity of material they have on hand. The Pennsylvania Railroad embargo, which is still on, preventing shipments of scrap steel to Pennsylvania delivery points, is a serious handicap to shippers having material for delivery at these points. The market is also affected in a depressing way by the delay in action by the Government on the price question for finished products, which has a reflex action in determining the prices for scrap materials. Except in the case of heavy melting steel, which has advanced \$1 per ton, there has been no material change in prices for the week, same having been stationary and nominal for the past two weeks. We quote dealers' asking prices, per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	\$33.00 to \$34.00
Low phosphorus	45.00 to 48.00
No. 1 railroad wrought	43.00 to 45.00
No. 1 railroad and machinery cast	30.00 to 31.00
Iron axles	45.00 to 50.00
Steel axles	45.00 to 50.00
Carwheels	35.00 to 36.00
Railroad malleable	33.00 to 34.00
Machine shop turnings	18.00 to 19.00
Heavy axle turnings	26.00 to 27.00
Clean cast borings	20.00 to 21.00
Iron rails	43.00 to 44.00
Locomotive grate bars	20.00 to 21.00
Stove plate	21.00 to 22.00
Wrought pipe	29.00 to 30.00
No. 1 busheling scrap	28.00 to 29.00
No. 2 busheling scrap	18.00 to 19.00
Bundled sheet stamping scrap	20.00 to 21.00

Finished Iron and Steel.—There appears to be a growing feeling among sellers that the crest of demand for purposes aside from war supplies is past for the present and such buying will not be resumed until it can be determined whether price readjustment due to Governmental action will materialize. The week has shown a dearth of business of this character; but the demand from manufacturers who have war contracts

is of good volume. Some inquiry is noted for spikes; orders taken being at \$6.00 per 100 lb. for standard railroad and \$7 for small railroad and boat spikes. The demand for sheets is steady at unchanged prices. The principal development in the Canadian market is the notice given by the Imperial Munitions Board that future contracts will be materially reduced; that the manufacture of certain sizes of shells is to be discontinued, and the manufacture of other sizes considerably curtailed. This has already resulted in the changing of output in some machine shops to engines and other parts of ship equipment in place of munitions, and is also necessitating the reorganization of the selling forces of Canadian steel companies, which are consequently now preparing for keener competition, many having increased their plant capacity to meet war demand, and now that war demand is apparently to be lessened, are obliged to provide other channels for taking care of output.

New York

NEW YORK, Aug. 29.

Pig Iron.—The pig iron market has flattened out and the only activity is in resale iron, of which there is not a large tonnage. The usual quotation on this resale iron is on the basis of \$52 to \$52.50, eastern Pennsylvania furnace for No. 2 X. Some surprise has been occasioned by the recent advance in the freight rate of pig iron from Buffalo to New England points. The old rate was \$2.58 and the new one is \$3.10. An illustration of the unusual methods used in shipping pig iron is furnished by the action of the Whitin Machinery Works, Whitinsville, Mass., which has chartered a boat to make two trips from Brunswick, Ga., to Providence, R. I., carrying pig iron. One trip has just been completed. We quote for tidewater deliveries in the near future as follows:

No. 1 foundry	\$52.75 to \$53.50
No. 2 X	52.50 to 53.00
No. 2 plain	52.00 to 52.50
Southern No. 1 foundry	52.75 to 53.75
Southern No. 2 foundry and soft	52.25 to 53.25

Structural Material.—Outside of such work as the rush requirements of the Merchants' Shipbuilding Corporation, Bristol, Pa., for which the fabricating award will probably be placed this week, the largest new offering in the East appears to be a Government central light, heat and power station at Washington, D. C., involving 2200 tons. The rest of the new work is chiefly in railroad bridges, including about 500 tons at Tonawanda, N. Y., for the New York Central, including a rolling lift section and 400 tons for approaches and 200 tons for the Pennsylvania Railroad, which has closed with the American Bridge Company for 100 tons of bridge work. An award has been made for 130 tons for the Baltimore & Ohio at Dayton, Ohio. The Central Railroad of New Jersey rejected bids recently received on a coaling pier and is now asking prices on the girder span alone. Plain material prices have not weakened in spite of general conditions, though a small tonnage to a jobber from a mill stock has been sold at 4.50c., Pittsburgh. We quote mill shipments at 4.695c. to 5.195c., New York, largely according to the urgency of shipment; while from warehouse, shipments are made at 5c. and 5.50c. per pound, New York, according to sizes desired.

Steel Plates.—The market has much the appearance of tottering. Large lots, one of no less than 5000 tons, has been offered at 8c. at mill, but business is slow of consummation owing to so much of it being considered for export ultimately and fraught with difficulties in the matter of securing licenses for shipment. What business has been done has in the main brought 8.75c. at mill, with one sale for a relatively small tonnage at 9c. for substantially immediate shipment. One unconfirmed statement is to the effect that a round tonnage for early shipment was sold to a car builder in the Central West for 6.25c., mill. Meanwhile some of the mills are still holding at 10c., with well-filled order books and less than half of the navy's plate requirements under speci-

cation and nothing of any amount yet booked for the merchant marine. At this writing awards have not yet been made for the 20,000 cars for Russia for which active inquiry for axles and specialties have been noted in the last 10 days. With a market in which each transaction is a law unto itself, we quote plates from mill at 8.945c., New York, and higher, and out of store, where assortments are broken, at 8c. and higher.

Iron and Steel Bars.—Generally speaking, the market is dull though with some inquiry for contracts. In one case this would mean in a matter of a 500-ton lot a delivery in not less than 17 months; it is believed that the buyers' inquiry represented the force of habit to insure rolling space without fully appreciating the time interval, and the transaction has not been closed. A marked concession was heard of in connection with a round tonnage for the first half of next year, but otherwise steel bars seem to be held generally at 4.50c. at mill, or 4.695c., New York, and iron bars at 4.945c. to 5.195c. From New York district warehouses steel and iron bars are sold at 5c. to 5.50c.

Cast Iron Pipe.—Business is very quiet. No important buying of public nature or by private concerns is reported. Carloads of 6-in., 8-in. and heavier are quoted at \$65.50 per net ton tidewater and 4-in. at \$68.50.

Old Material.—The most interesting development in the old material market has been the increase in freight rates from \$2.76 to \$3.20 from New York to the Pittsburgh district, with corresponding advances to other points in the Central West. In some cases, the advances have gone into effect already, while others will not be effective until Saturday. Another feature of the market has been the unusually large number of rejections and at the present time there are 60 carloads of wrought-iron pipe on track at Lebanon, Pa., which have been rejected. Dealers are complaining bitterly of the action of some buyers. The tendency of the market is downward. Most prices are about \$2 lower and there is a probability that they will be still lower next week. Dealers find it necessary to spend a large amount of time in getting permits to make shipments and the movement of old material to mills is very slow. Brokers quote buying prices as follows to New York producers and dealers per gross ton, New York:

Heavy melting steel scrap (for shipment to eastern Pennsylvania)	\$27.50 to \$29.50
Old steel rails (short lengths) or equivalent heavy steel scrap	27.00 to 29.00
Relaying rails	63.00 to 65.00
Re-rolling rails	37.00 to 39.00
Iron and steel car axles	40.00 to 42.00
No. 1 railroad wrought	39.00 to 40.00
Wrought-iron track scrap	30.00 to 31.00
No. 1 yard wrought long	30.00 to 31.00
Light iron	8.00 to 10.00
Cast borings (clean)	19.00 to 20.00
Machine-shop turnings	16.00 to 18.00
Mixed borings and turnings	14.00 to 16.00
Wrought-iron pipe (1 in. minimum diameter, not under 2 ft. long)	28.00 to 30.00

Machinery cast is extremely weak and has receded about \$5 per ton. For cast-iron scrap, dealers in New York City and Brooklyn are quoting as follows to local foundries per gross ton:

No. 1 machinery cast	\$30.00 to \$31.00
No. 1 heavy cast (column, building material, etc.)	26.00 to 27.00
No. 2 cast (radiators, cast boilers, etc.)	26.00 to 28.00
Stove plate	18.00 to 20.00
Locomotive grate bars	18.00 to 19.00
Old carwheels	31.00 to 33.00
Malleable cast (railroad)	30.00 to 32.00

Ferroalloys.—The market for ferromanganese has stiffened slightly as a result of the fairly large buying in the past two or three weeks and the quotation for domestic alloy now stands at \$375 for delivery in 1918 with \$400 to \$425 asked for prompt material and \$400 for the last half of this year. There is very little inquiry and very few sales are reported. A few consumers, principally smaller ones, are short of material and forced to buy at the present prices. Reports from Washington mention the proposed appointment of a dictator for ferroalloys, but it is hardly probable that this would improve on the present satisfactory handling of the situation through the alloy committee of the

Council of National Defense. Official reports indicate that the imports of ferromanganese for July were not over 2500 tons—one of the lowest monthly records. Indications are, however, that the receipts for August will be considerably more. Conditions in Great Britain are hard to gauge because of the discontinuance of official reports of imports into that country of manganese ore. These have not been published for the last two months. Spiegeleisen is quiet and only a few sales are reported with the quotation at \$85, furnace. Ferro-silicon, 50 per cent, remains unchanged at about \$200 to \$225 for delivery this year and \$165 for delivery in 1918.

IRON AND INDUSTRIAL STOCKS

Stock Market Depressed—Many Companies Record Losses in the Week

The stock market continued in a depressing state last week. The two depressing features were the agitation in favor of greatly increased taxation in connection with the national revenue bill pending in the Senate and the uncertainty as to the Government policy concerning iron and steel products. The announcement of prices of bituminous coal was taken as indicating a policy in favor of sharp reductions from prevailing prices, but the fixing in prices on anthracite, which virtually coincide with prevailing prices, was received with considerable satisfaction, although it left the country in doubt as to what the next move will be. On the whole, the tendency of prices of stocks was downward, but there were no violent declines.

Among the industrial stocks that registered losses during the past week were the following: Allis-Chalmers, 2; American Can, 1½; American Car & Foundry, 2; American Locomotive, 2½; American Steel Foundries, 2½; Baldwin Locomotive, 3½; Bethlehem Steel, 3; Bethlehem Steel, Class B, 3½; Colorado Fuel & Iron, ¾; Crucible Steel, ¾; Gulf States Steel, 6½; International Harvester, 2½; Lackawanna Steel, 3; Midvale Steel, 1¾; National Enameling & Stamping, 1¾; Pressed Steel Car, 3½; Republic Iron & Steel, 2½; United States Steel, 3; United States Steel, preferred, ¾. There were no gains recorded during the week.

The range of prices on active iron and steel stocks from Wednesday of last week to Tuesday of this week was as follows:

Allis-Chal., com.. 26 - 27½	Int. Har. of N. J., com. 113½
Allis-Chal., pref.. 83 - 84½	Int. Har. Corp., com. 75 - 75½
Am. Can, com.... 41½ - 45½	Lacka. Steel 81½ - 88½
Am. Can, pref... 106½ - 108½	Lake Sup. Corp. 16½ - 17½
Am. Car & Fdry., com. 69½ - 74	Lima Loco. 56 - 57
Am. Loco., com.. 62½ - 68½	Lukens, 1st pref. 101½ - 102½
Am. Ship, com... 93 - 93½	Midvale Steel... 52½ - 57
Am. Ship, pref... 95	Nat.-Acme 33½ - 34½
Am. Steel Fdries. 63 - 68½	Nat. Enam. & Stm., com. 39 - 41½
Bald. Loco., com. 62½ - 68½	N. Y. Air Brake. 129 - 131
Bald. Loco., pref. 99½	Nova Scotia Stl. 100 - 101
Beth. Steel, com. 112 - 114½	Pressed Stl., com. 65 - 68½
Beth. Steel, class B 107½ - 112½	Pressed Stl., pref. 102½
Beth. Steel, pref. 113 - 115½	Ry. Steel Spring, com. 49½ - 51½
Can. Car & Fdry., com. 28½	Ry. Steel Spring, pref. 98½ - 99
Carbon Stl., com. 96 - 97	Republic, com. .. 81½ - 88½
Case (J. I.), pref. 83 - 84	Republic, pref. .. 102 - 103½
Central Fdry., com. 30 - 31½	Sloss, com. 50 - 53
Central Fdry., pref. 49½	Superior Steel... 40 - 43
Charcoal Iron, com. 8½ - 8½	Superior Steel, 1st pref. 102½
Chic. Pneu. Tool. 66½ - 67	Transue-Williams 40½
Colo. Fuel 44½ - 47½	Un. Alloy Steel.. 42½ - 43½
Cruc. Steel, com.. 70½ - 80½	U. S. Pipe, com.. 18 - 20
Cruc. Steel, pref. 99½ - 100½	U. S. Pipe, pref. 54
Deere & Co., pref. 99 - 100	U. S. Steel, com. 118½ - 123½
Gen. Electric ... 150½ - 152½	U. S. Steel, pref. 116½ - 117½
Gt. No. Ore. Cert. 32½ - 36½	Va. I. Co. & Coke 63½ - 65
Gulf States Stl. 102 - 107½	Westing. Elec. .. 45 - 47½

Proposed Sale of Norwich Arms Plant

The receivers of the Hopkins & Allen Arms Co., Norwich, Conn., have petitioned the United States District Court for permission to sell the property. The Marlin-Rockwell Corporation, New Haven, Conn., is preparing to buy the plant and complete an unfinished order for rifles for the Belgian government. Men from the Marlin Arms plant have already taken charge of

the Hopkins & Allen plant and are operating it under the receivers.

At the time the receivers took charge of the company's affairs, only 11,392 rifles had been completed and the Belgian government had advanced \$228,155.29 to the concern and also held a big mortgage on the property. The cost of completing the order for Mauser rifles, the receivers say, would not be less than \$2,800,000. The outstanding mortgages amount to \$3,850,000 and there are outstanding and unpaid bonds issued by the company's predecessor for \$200,000 with accrued interest from April 1, 1917. The receivers represent that unless the performance of the rifle contract be assumed by some responsible manufacturer, the contracts cannot be completed and the company will be liable for large claims for damages on account of its breach of contracts.

The receivers believe that the speedy sale of the property is for the best interest of all concerned as Pierre Mali, acting for the Belgian government, represents to them that he has made an agreement with the Marlin-Rockwell Corporation and that he is making proposals to certain creditors of the Hopkins & Allen Arms Co. for the purchase of their claims and for the assumption by the Marlin-Rockwell Corporation of the unfilled contracts between Hopkins & Allen Arms Co. and other creditors. The original price for the rifles was \$27 each and it is understood that the 140,000 rifles remaining on the contract will be paid for at a price of \$40 each.

American Locomotive Earnings

The report of the American Locomotive Co. for the year ending June 30 last shows net profits after preferred dividends of \$5,451,679, equal to \$21.80 per share on the \$25,000,000 common stock. We compare with previous years as follows:

	1917	1916	1915	1914
Gross	\$82,213,845	\$59,316,016	\$9,303,298	\$29,987,438
Expenses†	72,614,654	47,450,582	10,445,900	27,425,187
Net	9,599,191	11,865,434	†1,142,602	2,562,252
Changes, etc. ...	192,192	301,005	349,378	486,124
Surplus	9,406,998	11,564,428	†1,491,980	2,076,127
U. S. and Canadian Taxes	2,205,319	795,000		
Dividends	3,250,000	1,750,000	1,750,000	1,750,000
Balance	3,951,680	9,019,429	†3,241,980	326,127
Add and bett. ...	2,000,000	3,000,000		
Surplus	1,951,679	6,019,429	3,241,980	326,127

†Deficit.

†Manufacturing, maintenance and administrative expenses and depreciation. The depreciation charge for 1917 was \$1,665,631, as against \$1,761,682 for 1916.

Chairman Schoonmaker says in part:

A profit of \$9,406,998 resulted from the year's operations, from which there has been deducted \$2,205,318 for income and war taxes, leaving a balance available of \$7,201,679. After payment of the dividend on the preferred of \$1,750,000, four quarterly dividends on the common aggregating \$1,250,000, and a special Red Cross dividend of \$250,000, making a total of dividends paid for the year of \$3,250,000, there remained a surplus of \$3,951,679 out of which there was created a reserve of \$2,000,000 for additions and betterments to the plants. The remaining profit of \$1,951,679 was added to accumulated surplus.

Deduction for taxes of \$2,205,318 fully provides for income and war taxes which have been or are to be levied under laws existing in the United States and Canada as of June 30, 1917, but they do not include any provision for proposed new excess profits tax, the bill for which was pending in Congress at the close of the company's fiscal year.

During the year there was expended for permanent additions and betterments to plants \$1,312,966, all of which was charged against the reserve for additions and betterments created out of the previous year's earnings.

Both in Canada and the United States, selling prices on munitions were reduced to lower levels than prevailed in the preceding year and the new contracts for shells admitted, even under normal conditions, of a much smaller margin of profit than previous contracts allowed. The new contracts were for larger shells than those previously made and necessitated large additions of equipment and extensive alterations to plants, for which \$3,760,561 has been included in the manufacturing cost and deducted from earnings.

Munitions work at Richmond and Montreal will be completed in August, 1917. The work of restoring these plants to locomotive production use has already been started and when completed the entire capacity of all plants will be devoted exclusively to manufacture of locomotives.

As a part of the plan of restoring the Richmond plant, and with the purpose of obtaining an immediate increase in foundry capacity of that plant for locomotive work, the company purchased on June 25, 1917, land and buildings of the Henrico Iron Works Corporation at Richmond, Va., suitable, with improvements which can be quickly installed, for making locomotive gray iron castings.

It is the purpose of the management to manufacture as much material entering in large quantities into the construction of locomotives as can be produced to economic advantage. In accordance with this policy, the company purchased on July 2, 1917, from the Penn Seaboard Steel Corporation, a modern steel casting plant, at Chester, Pa., known as the Seaboard Works.

The amount of unfilled locomotive orders on the books on June 30, 1917, was \$77,620,449, as compared with \$19,376,532 on June 30, 1916. The amount of munitions orders which were uncompleted on June 30, 1917, was \$3,566,528.

Bethlehem Steel Financing

The plan of financing to provide \$30,000,000 additional capital for the Bethlehem Steel Corporation was formally approved at a meeting of the board of directors on Tuesday afternoon. A meeting of stockholders will be called for Sept. 14 at the home office in Newark to authorize the issuance of \$30,000,000 worth of 8 per cent cumulative preferred stock convertible at any time in the option of the holder into B common stock at 115 and redeemable on 90 days' notice, any time after three years from date of issue, at 115 and accrued dividends, in its entirety or in amounts of not less than \$10,000 each. The stock is to be offered at par, dated Oct. 1, 1917, to holders of record of the outstanding common stock on both issues on Sept. 12, 1917, subscriptions being limited to one-half each subscriber's holdings of common stock. This new stock and the B common stock into which it is convertible carry no voting power. The Guaranty Trust Co., the Bankers' Trust Co. and J. & W. Seligman & Co. have formed a syndicate to underwrite the issue at a reported price of 96.

Following the directors meeting Charles M. Schwab issued a statement in part as follows:

The entrance of this country into the war has produced such abnormal conditions that the corporation is now confronted with the necessity of raising a very substantial additional amount of capital in order to continue its construction program and provide for the requirements of the greatly increased business resulting from the war. While this year's earnings (before deducting taxes) have thus far surpassed our estimates, having exceeded the earnings for the corresponding period last year, a very large part of the earnings which we had intended to expend upon improvements this year and next must be used for the payment of excess profits taxes and other war taxes. The orders already taken for the United States Government entail an increase of about \$15,000,000 in the construction program as adopted prior to this country's entrance into the war. The increase in our orders, together with the greatly increased cost of labor and materials, calls for an unexpected increase in working capital.

Industrial Finances

Superior Steel Corporation has called for redemption, on Sept. 15, through Columbia Trust Co., \$860,000 of its first preferred and \$25,833 of second preferred stocks, at \$107.50 a share. Amount of second preferred being redeemed is to take care of sinking fund requirements. The \$860,000 first preferred to be retired, however, is largely in excess of amount required by provisions of sinking fund.

Reports are that the Westinghouse Air Brake Co., Wilmerding, Pa., during its fiscal year to July 31 last, did not equal the remarkable profits of \$9,396,000 attained during the 1916 year. In that period the company handled a shell order calling for 1,250,000 shrapnel. The profit on this work was very satisfactory. At the same time, aside from 1916, the results in the fiscal year just ended were record-breaking. Net profits will finally figure out at about \$6,500,000, which is \$2,000,000 more than is required to pay the 16 per cent dividend on the stock, enlarged from \$20,000,000 to \$30,000,000 through the taking over of the Union Switch & Signal

Co. The Westinghouse Air Brake Co. has on hand unfilled orders for \$6,000,000 which is about four months' productive capacity.

Willett, Sears & Co., Boston, have offered to purchase the assets of the Boston Belting Co., Boston, at a net price equivalent to \$132.50 a share; \$82.50 in cash and \$50 in preferred stock of a new Boston Belting Corporation to be formed under a Massachusetts charter. The directors of the Boston Belting Co. have called a stockholders' meeting for Sept. 14 to take action on the offer which the directors have approved. The stock of the company has been quoted from 100 to 116 in the past few years. The move is partly the result of the desire of the president, Thomas Forsyth, to retire from

Dividends

The Charcoal Iron Co. of America, quarterly, 20c. on the common, payable Oct. 1.

The Lackawanna Steel Co., quarterly, 1½ per cent on the common, payable Sept. 29.

The Moline Plow Co., quarterly, 1¼ per cent on the first preferred, payable Sept. 1.

The National Enameling & Stamping Co., quarterly, 1¼ per cent on the preferred, payable Sept. 29.

The New York Air Brake Co., quarterly, 2½ per cent and extra 2½ per cent, both payable Sept. 21.

The Railway Steel Spring Co., quarterly, 1¼ per cent on the common, payable Sept. 29, and 1¼ per cent on the preferred, payable Sept. 20.

Mark Mfg. Co. to Build Homes

The Mark Mfg. Co., which has a new steel plant near completion at East Chicago, will build on land adjacent thereto a model home community for its employees which eventually will cost several million dollars. The first group of buildings will cost about \$1,000,000. The company owns 190 acres, which can be used for the purpose in view. The work will be supervised by Howard Shaw, architect, who has made a study of foreign and eastern industrial villages. There will be provision for recreation, schools, shops and club facilities. Around a square 280 x 350 ft. buildings will be erected for market purposes. There also is planned a street car line extending from East Chicago and Whiting to Indiana Harbor.

Work has been started on 200 homes, ranging in size from four to seven rooms, to cost from \$2,000 to \$8,000 each. They will be of tile, and known as the slow-burning type. Abundant space will be provided for home gardens. Several large boarding houses also will be constructed. The plans call for a recreation building, a motion picture theater, and a lake at one end of the tract, near which will be constructed attractive homes for the leading men of the company. Altogether the new town will have accommodations for 7000 persons. Employees will be permitted to purchase their homes on a time payment arrangement.

Manganese Ore Imports Continue Large

Manganese ore imports into the United States in June are officially reported as 62,778 gross tons, bringing the total for the fiscal year ended June 30, 1917, to 656,088 tons, as compared with 492,860 tons for the year ended June 30, 1916. The June imports are the second largest so far in 1917, the maximum having been 81,269 tons in May. The total for the first six months this year is 316,793 tons, or at the rate of 52,799 tons per month. This is also at the rate of 633,586 tons for the year, comparing with 526,525 tons in 1916 and with 656,088 tons for the fiscal year, noted above. The present imports mean a production of at least 250,000 tons of 80 per cent ferromanganese per year.

The Franklin Institute, Philadelphia, has awarded its Edward Longstreth medal of merit to Frank H. Schoenfuß and Albert Kingwald, both of Philadelphia, for the invention of the portable Brinell meter. It is manufactured and sold by Herman A. Holz, 1 Madison Avenue, New York.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

Freight rates from Pittsburgh in carloads, per 100 lb.: New York, 19.5c.; Philadelphia, 18.5c.; Boston, 21.5c.; Buffalo, 11.6c.; Cleveland, 10.5c.; Cincinnati, 15.8c.; Indianapolis, 17.9c.; Chicago, 18.9c.; St. Louis, 23.6c.; Kansas City, 43.6c.; Omaha, 43.6c.; St. Paul, 32.9c.; Denver, 68.6c.; New Orleans, 30.7c.; Birmingham, Ala., 45c.; Denver pipe, 76.1c., minimum carload, 46,000 lb.; structural steel and steel bars, 76.1c., minimum carload, 40,000 lb.; Pacific coast (by rail only), pipe, 65c.; structural steel and steel bars, 75c., minimum carload, 60,000 lb. No freight rates are being published via the Panama Canal, as the boats are being used in transatlantic trade.

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in., angles, 3 to 6 in. on one or both legs, $\frac{1}{4}$ in. thick and over, and zees 3 in. and over, 4.00c.

Wire Products

(Prices of independent mills)

Wire nails \$4 base per keg; galvanized, 1 in. and longer, including large-head barb roofing nails, taking an advance over this price of \$2, and shorter than 1 in., \$2.50. Bright basic wire, \$4.05 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3.95; galvanized wire, \$4.65; galvanized barb wire and fence staples, \$4.85; painted barb wire, \$4.15; polished fence staples, \$4.15; cement-coated nails, \$3.90 base, these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 43 per cent off list for carload lots, 42 per cent off for 1000-rod lots, and 41 per cent off for small lots, f.o.b. Pittsburgh.

Nuts and Bolts

Discounts in effect for large buyers are as follows, delivered in lots of 300 lb. or more, when the actual freight rate does not exceed 20c. per 100 lb., terms 30 days net, or 1 per cent off for cash in 10 days.

Carriage bolts, small, rolled thread, 40 per cent, small cut thread, 35 and 2½ per cent; large, 25 per cent.

Machine bolts, h. p. nuts, small, rolled thread, 40 and 10 per cent; small, cut thread, 40 per cent; large, 30 per cent.

Machine bolts, c. p. c. and t. nuts, small, 30 per cent; large, 20 per cent. Bolt ends, h. p. nuts, 30 per cent with c. p. nuts, 20 per cent. Lag screws (cone or gimlet point), 45 per cent.

Nuts, h. p. sq. blank, \$2.10 off list, and tapped, \$1.90 off; hex. blank, \$1.90 off, and tapped, \$1.70 off; nuts, c. p. c. and t. sq. blank, \$1.70 off, and tapped, \$1.50 off; hex. blank, \$1.60 off, and tapped, \$1.40 off. Semi-finished hex. nuts, 50 and 10 per cent. Finished and case-hardened nuts, 50 and 10 per cent.

Rivets 7/16 in. in diameter and smaller, 40 per cent.

Wire Rods

Soft Bessemer and open-hearth rods to domestic consumers at \$90 to \$95; high-carbon rods made from ordinary open-hearth steel, \$95 to \$100, and special steel rods with carbons running from 0.40 to 0.60, \$100 to \$110 at mill; above 0.60 carbon, \$115 to \$120.

Railroad Spikes and Track Bolts

Railroad spikes 9/16 in. and larger, \$7.00; $\frac{3}{8}$ in., 7/16 in. and $\frac{1}{2}$ in., \$7.00 base. Boat spikes are occasionally quoted \$7.00 to \$8.00 all per 100 lb. f.o.b. Pittsburgh, but some makers are quoting higher. Track bolts with square nuts, 7c. to 7.50c. to railroads, and 8c. to 8.50c., in small lots, for fairly prompt shipment.

Steel Rails

Angle bars at 3.50c. to 3.75c. at mill, when sold in connection with orders for standard section rails, and on carload and smaller lots, 4c. to 4.25c. at mill. Light rails, 25 to 45 lb., \$75 to \$80; 16 to 20 lb., \$80 to \$81; 12 and 14 lb., \$82 to \$83; 8 and 10 lb., \$83 to \$84; in carload lots, f.o.b. mill, with usual extras for less than carloads. Standard Bessemer rails, \$38; open-hearth, \$40, per gross ton, Pittsburgh.

Tin Plate

Effective July 31, prices on all sizes of terne plate were advanced from \$2 to \$2.50 per package and are now as follows: 8-lb. coating, 200 lb., \$16 per package; 8-lb. coating, 1 C. \$16.30; 12-lb. coating, 1 C. \$17.50; 15-lb. coating, 1 C. \$18.25; 20-lb. coating, 1 C. \$19; 25-lb. coating, 1 C. \$20; 30-lb. coating, 1 C. \$21; 35-lb. coating, 1 C. \$22; 40-lb. coating, 1 C. \$23 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 4c. to 4.50c. for delivery late this year, and 4.50c. to 5c. from warehouse, in small lots for prompt shipment. Refined iron bars, 4.75c.; railroad test bars, 5.25c. in carload and larger lots f.o.b. mill.

Wrought Pipe

The following discounts on steel are to jobbers for carload lots on the Pittsburgh basing card in effect from May 1, 1917, all full weight, except for LaBelle Iron Works and

Wheeling Steel & Iron Co., which quote higher prices, and National Tube Co., which adheres to card of April 1.

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	42	15½	$\frac{1}{8}$ and $\frac{1}{4}$	23	+4
$\frac{1}{2}$	46	31½	$\frac{3}{8}$	24	+3
$\frac{3}{4}$ to 3.....	49	35½	$\frac{1}{2}$	28	10
			$\frac{3}{4}$ to 1½.....	33	17
Lap Weld			Butt Weld		
2.....	42	29½	2.....	26	12
2½ to 6.....	45	32½	2½ to 6.....	28	15
7 to 12.....	42	28½	7 to 12.....	25	12
13 and 14.....	32½	..			
15.....	30	..			
Butt Weld, extra strong, plain ends			Lap Weld, extra strong, plain ends		
$\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$	38	20½	2.....	27	14
$\frac{1}{2}$	43	30½	2½ to 4.....	29	17
$\frac{3}{4}$ to 1½.....	47	34½	4½ to 6.....	28	16
2 to 3.....	48	35½	7 to 8.....	20	8
			9 to 12.....	15	3

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variation in weight of 5 per cent. Prices for less than carloads are four (4) points lower basing (higher price) than the above discounts on black and 5½ points on galvanized.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers are seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe are nine (9) points lower (higher price).

Boiler Tubes

Nominal discounts on less than carload lots, freight added to point of delivery, effective from Nov. 1, 1916, on standard charcoal iron tubes, and from April 2, 1917, on lap-welded steel tubes are as follows:

Lap-Welded Steel	Standard Charcoal Iron
1½ and 2 in.....	1½ in.....
2½ in.....	1¾ and 2 in.....
2½ and 2¾ in.....	2½ in.....
3 and 3½ in.....	2½ and 2¾ in.....
3½ to 4½ in.....	3 and 3½ in.....
5 and 6 in.....	3½ to 4½ in.....
7 to 13 in.....	5 and 6 in.....
	7 to 13 in.....

Above discounts apply to standard gages and to even gages not more than four gages heavier than standard in standard lengths. Locomotive and steamship special charcoal grades bring higher prices.

1½ in., over 18 ft., and not exceeding 22 ft., 10 per cent net extra.

2 in. and larger, over 22 ft., 10 per cent net extra.

Sheets

Makers' prices for mill shipments on sheets of United States standard gage, in carload and larger lots, are as follows, 30 days net, or 2 per cent discount in 10 days. [Open-hearth stock, \$5 per ton above these prices.]

Blue Annealed—Bessemer		Cents per lb.
Nos. 3 to 8.....		8.00 to 8.50
Nos. 9 and 10.....		8.25 to 8.50
Nos. 11 and 12.....		8.50 to 8.75
Nos. 13 and 14.....		8.75 to 9.00
Nos. 15 and 16.....		9.00 to 9.25
Box Annealed, One Pass Cold Rolled—Bessemer		
Nos. 17 to 21.....		8.30 to 8.80
Nos. 22 and 24.....		8.35 to 8.85
Nos. 25 and 26.....		8.40 to 8.90
No. 27.....		8.45 to 8.95
No. 28.....		8.50 to 9.00
No. 29.....		8.55 to 9.05
No. 30.....		8.65 to 9.15
Galvanized Black Sheet Gage—Bessemer		
Nos. 10 and 11.....		9.00 to 9.50
Nos. 12 and 14.....		9.10 to 9.60
Nos. 15 and 16.....		9.25 to 9.75
Nos. 17 to 21.....		9.40 to 9.90
Nos. 22 and 24.....		9.55 to 10.05
Nos. 25 and 26.....		9.70 to 10.20
No. 27.....		9.85 to 10.35
No. 28.....		10.00 to 10.50
No. 29.....		10.25 to 10.75
No. 30.....		10.50 to 11.00
Tin-Mill Black Plate—Bessemer		
Nos. 15 and 16.....		7.80 to 8.30
Nos. 17 to 21.....		7.85 to 8.35
Nos. 22 to 24.....		7.90 to 8.40
Nos. 25 to 27.....		7.95 to 8.45
No. 28.....		8.00 to 8.50
No. 29.....		8.05 to 8.55
No. 30.....		8.05 to 8.55
Nos. 30½ and 31.....		8.10 to 8.60

Metal Markets

The Week's Prices

Cents Per Pound for Early Delivery							
Copper, New York		Tin.	Lead		Spelter		
Aug.	Lake	Electro-lytic	New York	St. Louis	New York	St. Louis	
22.....	26.50	26.50	61.75	10.67½	10.55	8.75	8.50
23.....	26.25	26.25	61.75	10.62½	10.50	8.62½	8.37½
24.....	26.25	26.25	61.50	10.62½	10.50	8.62½	8.37½
25.....	26.00	26.00	...	10.62½	10.50	8.50	8.25
27.....	25.75	25.75	61.37½	10.55	10.42½	8.37½	8.12½
28.....	25.50	25.50	61.50	10.55	10.42½	8.37½	8.12½

NEW YORK, Aug. 29

Stagnation, induced and perpetuated by uncertainties regarding Government control of markets, pervades the entire metal industry. Prices in practically all cases are nominal. Copper is lifeless and weaker. Very few transactions are reported in tin. Lead is quiet but steady. Spelter is stagnant and lower. Antimony continues dull and unchanged.

New York

Copper.—Inquiry in the trade reveals the fact that dealers are at sea regarding the actual condition of the market. Buying is at the lowest ebb in the memory of many dealers and prices are therefore entirely nominal. Quotations vary, depending on the viewpoint of the seller. They have receded in the past week, until yesterday both Lake and electrolytic were nominally quoted at about 25.50c., New York, with the last quarter at 24c. to 25c. Various rumors have been set afloat to affect the market, particularly in reference to prices the Government will pay, placing these anywhere to 20c. to 25c. per lb., but without effect. Serious strikes in certain important districts have also had an adverse effect. It is believed, however, that with the probable appointment of a dictator for copper within a short time definite prices will be announced. It is acknowledged that a large buying movement must come before long. London quotations yesterday were unchanged at £137 per ton for spot electrolytic and £133 for futures.

Tin.—The market is quiet and duller than in recent inactive weeks. Prices quoted above are more nearly nominal than usual because transactions have been so few. Buying is only mandatory and is continually repressed by general market uncertainties emanating from Washington. Spot Straits tin appears to be in light supply as well as in light demand. On Aug. 23, 50 tons were sold at 61.75c., New York, but on the following day there was no business and no inquiry. On Monday, Aug. 27, there were more sellers than buyers. Spot Banca tin on that day was sold at 58.75c., and there were fair sales of December shipments from the Straits at 56.62½c. Yesterday the market was stagnant and lifeless, with no inquiry except from those desiring to keep posted on market conditions. The London market yesterday was £244 for spot Straits. Arrivals up to Aug. 28 are reported as 2520 tons, with the quantity afloat 4215 tons. Yesterday the quotation for Straits tin, New York, was 61.50c.

Lead.—There is no improvement in the market. During last week demand grew less, if this were possible, and prices receded. There is in the mind of most consumers the Government price of 8c. per lb. paid on its recent purchases and it is naturally difficult to stimulate an interest in a market quoted at 10.55c., New York, yesterday. In spite of this the market remains fairly firm and a continuation of present dull conditions is looked for until a decision comes from the Government. Buyers are proceeding with extreme caution and demand for manufactured goods has fallen off. Sales of resale carload lots have been reported for September-October delivery as low as 10.37½c., New York. Yesterday the metal sold in carload lots at 10.55c., New York. The first mid-year report of the U. S. Geological Survey on the production of refined lead shows that the output to July 1, 1917, was 2,306,062 tons or 20,495 tons greater than one half of the 1916 production. The gain was nearly all in lead made from foreign ores and bullion, the increase being 20,086 tons.

Spelter.—The market has hardly ever been more lifeless. It is dominated by the uncertainties which have hung over it and the other markets so long. Buying is at a very low ebb and quotations are erratic and nominal depending on the parties interested. Some dealers are holding at 8.25c. to 8.50c., St. Louis, or 8.50c. to 8.75c., New York, while others quote as low as 7.75c. to 8c., St. Louis, or 8c. to 8.25c., New York, for early delivery. One dealer reports the sale of a carload at 7.75c., St. Louis. There is, however, not enough business to establish a firm quotation. It is more than four months since any export business has been done and it is hard to account for the inactivity of foreign interests. Embargoes have not relieved the situation. The trade is certain that large buying is but a matter of time.

Antimony.—Dullness continues to pervade the market with quotations unchanged at 15c. to 15.50c., New York, duty paid, for Chinese and Japanese grades.

Aluminum.—Little interest is shown in No. 1 virgin aluminum, 98 to 99 per cent pure, which is quoted at 47c. to 49c. per lb., New York.

Old Metals.—Dealers' selling prices are a little lower as follows:

	Cents per lb.
Copper, heavy and crucible.....	27.00 to 27.50
Copper, heavy and wire.....	26.00 to 26.50
Copper, light and bottoms.....	23.00 to 24.00
Brass, heavy.....	18.00 to 19.00
Brass, light.....	13.00 to 14.00
Heavy machine composition.....	24.50 to 25.00
No. 1 yellow rod brass turnings.....	17.00
No. 1 red brass or composition turnings.....	19.00 to 21.00
Lead, heavy.....	9.25 to 9.37½
Lead, tea.....	7.75
Zinc.....	6.75

Chicago

AUG. 27.—Copper and lead have been in fair demand, mostly, however, for nearby delivery, consumers not being disposed to buy far ahead while there is uncertainty as to the future of prices. The quotations for copper, tin and spelter have been revised downward. The interest in spelter and antimony is very slight. We quote as follows: Casting copper, 26.25c.; Lake, 28c.; electrolytic, 26.50c.; tin, carloads, 62c.; small lots, 64c. to 65c.; lead, 10.50c.; spelter, 8c.; sheet zinc, 19c.; antimony, 17c. to 18.50c. On old metals we quote buying prices for less than carload lots as follows: Copper wire, crucible shapes, 22.50c.; copper clips, 21.50c.; copper bottoms, 21c.; red brass, 21c.; yellow brass, 15c.; lead pipe, 8c.; zinc, 5.50c.; pewter, No. 1, 35c.; tinfoil, 40c.; block tin, 45c.

St. Louis

AUG. 27.—Non-ferrous metals have been rather quiet during the week with the close to-day on carload lots or larger as follows: Lead, 10c. to 10.25c., according to delivery; spelter, 8.12½c. to 8.25c. In less than carload lots the quotations are: Lead, 11.25c.; spelter, 9c.; tin, 66c.; Lake copper, 30c.; electrolytic copper, 29.50c.; Asiatic antimony, 18c. In the Joplin district zinc blende developed a stronger tone, but the quotations ranged from \$65 to \$75 per ton, basis of 60 per cent metal. The average for the district for the week was \$70 per ton. There were some reports of prices paid as high as \$77 for choicest ores, but buyers would not admit it, save that it was paid as a premium on ore above the basis grade. The turn in was the largest for several months and would have been much larger had the Oklahoma section of the district been able to get cars. Calamine was firm at \$35 to \$42 per ton, basis of 40 per cent metal, with the average for the week for the district \$40 per ton. Lead ore was strong at \$100 per ton, with the average, basis of 80 per cent metal, held at the same price. On miscellaneous scrap metals we quote dealers' buying prices as follows: Light brass, 11c.; heavy yellow brass, 14.50c.; heavy red brass and light copper, 19.50c.; heavy copper and copper wire, 22.50c.; pewter, 25c.; tinfoil, 42c.; zinc, 5c.; tea lead, 6c.; lead, 7c.

The Syracuse Smelting Works of Brooklyn, N. Y., have just completed the installation of two additional furnaces.

The Pacific Coast Steel Co. has repaired its blast furnace at Irondale, Wash., and will blow it in about Sept. 1.

DELAYS IN RIFLE PRODUCTION

Ordnance Bureau's Wise Decision Insures Interchangeability

WASHINGTON, Aug. 28.—Concerning statements recently published to the effect that the production of rifles under the direction of the War Department has been unnecessarily delayed as the result of ill-advised official action or inaction, the correspondent of THE IRON AGE is authorized to state the facts briefly.

The Enfield rifle for the arming of the American troops is now being manufactured in three plants originally equipped to make rifles for the British army. The circumstances under which it became necessary to select the Enfield rifle because the arsenals could not produce a sufficient number of Springfields and because Congress had failed to supply funds for the equipment of private plants to make them, have heretofore been described in these columns. Immediately after it was decided to use the Enfield rifle the Secretary of War sent an urgent request to Congress for an appropriation of \$9,500,000 to purchase the special equipment belonging to the British Government in the plants of the Remington and Winchester companies. Up to the present time this money has not been appropriated, but the Secretary of War, appreciating the great danger of delay, decided not to await Congressional action, and upon his own responsibility borrowed the equipment from the British Government and gave orders to have the Enfield rifles turned out as rapidly as possible.

Soon after the first deliveries were made from the three plants it was discovered that the parts of the rifles made in the different establishments were not interchangeable and that even in the case of rifles made in the same plant the degree of interchangeability was not satisfactory to the experts of the Ordnance Bureau. War Department officials cast no reflection upon the British experts or upon the manufacturers who made the Enfield rifles for the British Government. The work was done under extraordinary conditions, when special equipment in the way of gages, dies, automatics, etc., was exceedingly difficult to obtain, as the manufacturers of these devices were so loaded up with orders as to have absolutely no capacity for new work.

As the result of conferences between the ordnance officials and the Secretary of War it was decided that the improvement of the interchangeability of the Enfield rifles was imperatively necessary, even at the expense of considerable delay in their production; otherwise the Ordnance Department would be obliged to maintain at least three separate repair depots on every front on which the Enfield rifles might be used, and in the case of the disabling of a rifle it would be necessary to identify it as a product of the particular plant in which it was made in order to send it to the proper repair depot. The standardization of the equipment of the three plants was therefore ordered and has been in progress for some time. The work has not caused the entire suspension of the production of rifles, which are being turned out in quantities entirely satisfactory under the circumstances. A normal rate of production will be acquired at an early date, and the War Department will then have the satisfaction of knowing that the rifles being issued to the new army are decidedly superior to the Enfields made for the British forces, and, in fact, are the best that can be made on this particular model.

When the War Department took over the British equipment for making Enfield rifles it also authorized the retention of some 750 inspectors originally employed by the British authorities. These men are highly skilled and their retention in the service, at least until their places can be satisfactorily filled, is regarded as of the greatest possible importance; in fact any breaking up

of the rifle-making organization would be little short of a calamity. During the standardization of the equipment of the plants referred to, however, there have been periods when the entire staff of inspectors have not been continuously employed, although regularly paid, and this fact has been made the basis of criticism of the Ordnance Bureau.

Summarizing the situation, it would appear that the department has met a very difficult situation as skillfully and as wisely as possible and that the slight delay in the production of rifles will be more than compensated for by the quality of the weapons placed in the hands of the American soldiers. It is stated positively that there will be an ample supply of rifles for all troops sent abroad and that any temporary shortage in arms for training soldiers in the United States can easily be met by arranging drilling periods so that two sets of men can use the same guns.

W. L. C.

Pig-Iron and Steel-Ingot Output of the New Youngstown District

A separate page of the Annual Statistical Report of the American Iron and Steel Institute for 1916 is given to the production of iron and steel in what is known as the Youngstown district. By action of the institute in 1915 the Youngstown district was constituted for statistical purposes, and it was defined as taking in Mahoning and Trumbull Counties and the northern part of Columbiana County in Ohio and Mercer, Lawrence and Beaver Counties in Pennsylvania. However, in its regular statistics the institute has not changed the districts maintained for years—namely, the Mahoning Valley in Ohio and the Shenango Valley in Pennsylvania. These are historic and natural district designations and do not cross State lines as is done in the creation of the new Youngstown district, while the continuance of the Shenango Valley very properly preserves the collective iron-making activities of New Castle, Sharon and Farrell. By the creation of the Youngstown district, the identity of these three producing centers is swallowed up in Youngstown. The inclusion of Beaver County, Pa., in the Youngstown district also gives credit to Youngstown for the output of two important plants owned by Pittsburgh interests and naturally tributary to the Pittsburgh district. These are the works of the Pittsburgh Crucible Steel Co. at Midland and the Aliquippa works at Woodlawn of the Jones & Laughlin Steel Co.

The above explanation is necessary to an understanding of a compilation just made and published at Youngstown, comparing the iron and steel industry of the Youngstown district in 1916 with that of Allegheny County in the same year. The figures for pig iron, steel ingots and rolled products for the two districts are as follows:

	Youngstown District, 1916	Allegheny County, 1916
	Gross Tons	Gross Tons
Pig iron	6,923,938	7,239,913
Open-hearth steel ingots	4,042,347	7,270,060
Bessemer steel ingots	3,115,184	1,956,608
Other steel ingots	25,150	46,328
Total steel ingots	7,182,681	9,272,996
Rolled products	3,765,389	7,244,405

In the Youngstown district, as defined above, there were 49 blast furnaces in 1916, against 47 in Allegheny County. The percentage of gain in pig-iron production in 1916 over 1915 was 25.5 for the Youngstown district and 22 for Allegheny County. In steel-ingot production the percentage of gain was 23.5 for the Youngstown district and 19.7 for Allegheny County.

The Carnegie Steel Co. is extending the building housing its 8-in. mill at its Youngstown, Ohio, lower Union works, for the purpose of giving more room for its straightening beds and rolls. Every indication points to the upper and lower Union bar mills in Youngstown being used as long as possible, despite rumors to the effect that these units are to be abandoned as soon as the McDonald bar mills are completed.

PERSONAL



EDWIN T. JACKMAN

Edwin T. Jackman of E. S. Jackman & Co., agents for the Firth-Sterling Steel Co., McKeesport, Pa., in Chicago, Cleveland and Pittsburgh, has received an appointment as first lieutenant in the ordnance section of the Officers' Reserve Corps, and is now on active duty.

J. E. Thomas, formerly purchasing agent of the Whitaker-Glessner Co. at its Portsmouth, Ohio, works, has resigned to become purchasing agent for the Canton Sheet Steel Co., Canton, Ohio. No successor has yet been appointed to Mr. Thomas, but his former duties are being taken care of by F. W. Knowles, assistant general superintendent, and J. L. Whatkins, assistant sales manager of the Portsmouth works.

William Maginness has been appointed general manager of the Christiana Machine Co., Christiana, Pa.

Witherbee, Sherman & Co., New York, announce that, pursuant to action of the board of directors at a meeting held Aug. 20, the officers of the company are as follows: Walter C. Witherbee, chairman of the board, Port Henry; Lewis W. Francis, president, New York; E. A. S. Clarke, vice-president, New York; George C. Foote, vice-president and general manager, Port Henry; Silas H. Witherbee, treasurer, Port Henry; Ralph E. Rogers, secretary, New York.

Jarvis Williams, Jr., manager of the commercial division, and Lewis F. Hall, manager of the military division, have been made respectively works manager and assistant works manager of the Union Metallic Cartridge plant, Bridgeport, Conn., one of the works of the Remington Arms Union Metallic Cartridge Co.

Charles E. Edwards, for many years a departmental foreman of Landers, Frary & Clark, New Britain, Conn., has been made assistant superintendent of the hardware department.

George A. Fernley, secretary and treasurer of the Metal Club of Philadelphia, has been commissioned a first lieutenant in the Ordnance Department of the United States Army, with office at Washington, D. C.

John A. Cook has been appointed superintendent of transportation at the plant of the Solvay Process Co., Solvay, N. Y.

Harry E. Harris, president of the Harris Engineering Co., Bridgeport, Conn., and William A. Viall, of the Brown & Sharpe Mfg. Co., Providence, R. I., have been appointed on a committee to act with the National Bureau of Standards in effecting gages for munition manufacture.

Gilbert L. Robinson, formerly connected with the steel department of Gaston, Williams & Wigmore, Inc., New York, has resigned to become associated with F. W. Highberger & Co., coal, coke, pig iron and steel, 30 Church Street, New York.

Henry D. Booth, formerly in charge of the munition department, Midvale Steel Co., has been appointed superintendent, succeeding George Satterthwaite, resigned. John L. Cox has been appointed as assistant, in place of Newell C. Bradley, resigned.

Arthur S. Lewis has resigned his position with the Chicago-Cleveland Car Roofing Co., to join the sales force of Flint & Chester, Inc., New York. Effective Sept. 1. Mr. Lewis, as assistant to the president, will

have charge of sales to railroads and other large corporations. He succeeds W. B. Wise, who resigned to go into other business.

W. I. Ballentine, superintendent Chain Belt Co., Milwaukee, has resigned, effective Sept. 1, to assume the position of vice-president of the Advance-Rumely Co., LaPorte, Ind.

Samuel H. Squier, Jr., mechanical engineer, Milwaukee Electric Crane & Mfg. Co., Milwaukee, has enlisted as a private in Co. A, Wisconsin Home Guard, the first company to be formed in the organization of a 36-company military establishment that will take the place of the Wisconsin National Guard while it is in the federal service.

Judge James B. Kennedy, former judge of the Mahoning County common pleas bench, has been named chairman of the board of the Brier Hill Steel Co., Youngstown, Ohio, to succeed Henry H. Stambaugh, resigned. Mr. Kennedy has been a member of the Brier Hill board for about a year.

J. M. Barringer, formerly superintendent and sales manager of the American Malleables Co., Lancaster, N. Y., has become connected with the Canton, Ohio, foundry of the Timken-Detroit Axle Co., as assistant manager and efficiency engineer.

A. A. Gloetzner, Detroit factory manager for the Covert Gear Co.; J. D. Harris, McCord Mfg. Co., Detroit; A. W. Coplant, Detroit Gear & Machine Co.; K. W. Hooth, Fuller & Sons Mfg. Co., Kalamazoo, and Carl Clement, Bock Bearing Co., Toledo, are among nine engineers called to assist the Government in designing standard military trucks.

John F. Berteling, formerly representative of the Sullivan Machinery Co., Chicago, in upper Michigan, has been appointed superintendent of the company's mining properties on the Mesaba range.

C. B. Dunster, for a number of years consulting engineer with the Breitung mining interests and for the past three years manager of the mining department of Breitung & Co., New York, has succeeded H. L. Kaufman as manager of E. N. Breitung & Co. at Cleveland and as assistant general manager of the Breitung iron properties. Mr. Kaufman resigned to enter the banking business in New York. H. B. Barling, formerly chief engineer under Mr. Dunster, succeeds him in New York. E. N. Breitung is general manager of both the iron operations from Cleveland and miscellaneous mining operations of Breitung & Co., New York.

B. A. Shutts, who will go to Harrisburg, Pa., as superintendent of the Central Iron & Steel Co. plant, Sept. 1, will succeed George Shook, the present superintendent, who will leave for Port Henry, N. Y., where he will engage in private business. Mr. Shutts is superintendent of the North Cornwall furnaces, Bethlehem Steel Co., Lebanon, Pa.

W. A. Janssen, for four years the superintendent of the Bettendorf Co.'s steel foundry at Bettendorf, Iowa, has resigned, after having rounded out 10 years of continuous service for this company. Mr. Janssen has served as chemist, metallurgist, superintendent of construction, assistant superintendent, and superintendent, and has been a large factor in its building. He is a vice-president of the American Foundrymen's Association. He leaves for a larger field along the same line of endeavor. At a banquet given for him by the employees, he was tendered a handsome watch and diamond ring.

George A. Paff, superintendent for the past eight years of the rod and wire mills at the Aliquippa works of the Jones & Laughlin Steel Co., Woodlawn, Pa., has resigned to become general superintendent of the Page Woven Wire Fence Co., Monessen, Pa. Previous to engaging with the first-named company, Mr. Paff was superintendent of the rod and wire mills at the Sharon plant of the American Steel & Wire Co.

The Debevoise-Anderson Co., New York, agent for pig iron, has contributed liberally toward army and navy. Paul Debevoise is captain in the infantry branch and is now at Petersburg, Va. S. J. Meeker, a lieutenant in the navy, is stationed at Newport News.

H. Ellsworth, a sergeant in the Twenty-third Infantry, is stationed in Brooklyn. W. K. Callow has just returned from six weeks' training in the Ordnance Department, Dartmouth, and expects soon to enter active service.

J. H. McKown, who has been chief clerk to W. B. Weston, manager of sales for the Carnegie Steel Co., the Tennessee Coal, Iron & Railroad Co., and other United States Steel Corporation interests in St. Louis, has been accepted for the officers' camp at Fort Sheridan and will report for training Aug. 27.

J. C. Bryan, formerly with Manning, Maxwell & Moore, Inc., as southwestern representative of the Ashcroft Mfg. Co., Consolidated Safety Valve Co., Hayden & Derby Mfg. Co. and Hancock Inspirator Co., is now connected with the equipment department of the Walter A. Zelnicker Supply Co., St. Louis.

The directors of the recently incorporated Valley Iron Co., Youngstown, Ohio, have elected officers as follows: Wade A. Taylor of Niles, president; C. W. Martin, vice-president; C. H. Stewart, secretary and treasurer. Directors are Wade A. Taylor, C. W. Martin, C. H. Stewart, D. A. Strickland and C. C. Stewart.

F. H. Willcox has resigned his connection with the Huessener Engineering Co., Pittsburgh, and C. O. Nordennson, formerly with the Foos Gas Engine Co., Springfield, Ohio, has been appointed to succeed him.

Electric Steel Furnaces in Great Britain

Electric furnaces, built or building in 1916 in the United Kingdom, according to a recent report of the Iron, Steel and Allied Trades Federation (British) was 91 as against 45 in 1915. The following table shows the number according to types and the output so far as information was available:

Type	Number	Total Capacity, Tons
Heroult	32	153.5
Electro-Metals (Grönwall-Dixon)	22	60.5
Greaves-Etchell	20	...
Remerfelt	5	8.2
Snyder	4	1.5
Stassano	3	...
Stobie	2	...
Frck (since converted)	1	...
Special	2	...
Total	91	...

The total compares with 88 as given in the review of the electric steel industry of the world, compiled by THE IRON AGE and published Jan. 4, 1917.

New Company to Install a Booth-Hall Electric Furnace

The Midland Electric Steel Co., recently incorporated, will put in operation early in October a 1200-kva., 3-ton, 2-phase, Booth-Hall electric steel furnace. The plant will be located at Terre Haute, Ind., in connection with the Highland Iron & Steel Co., an arrangement having been made for the latter company to roll the product, which will be forging billets 4-in. square and under. Joseph B. Moos, 116 South Michigan Avenue, Chicago, is president of the Midland Electric Steel Co. The directors are Mr. Moos, W. C. Ely, treasurer and general manager of the Highland Iron & Steel Co., and Moses E. Greenebaum, president Greenebaum Sons Bank & Trust Co., Chicago. Power for operating the furnace will be supplied by the Terre Haute, Indianapolis & Eastern Traction Co.

New Scrap Company

The Stalnaker Steel Co. has been organized to engage in the handling of iron and steel scrap of all kinds and will open offices shortly in rooms 2126-2130 Farmers' Bank Building, Pittsburgh. H. D. Stalnaker is president, H. G. Stalnaker is vice-president, and F. S. Easterly, secretary. For some years H. D. Stalnaker has represented, in the Pittsburgh district, the Ohio Iron & Metal Co., dealer in iron and steel scrap, with main offices at Chicago.

OBITUARY

WILLIAM H. PERRY, president of the Perry, Buxton, Doane Co., scrap iron dealer and active in bank and mercantile concerns, died Friday afternoon, Aug. 24, at Weirs, N. H., of acute indigestion. He was on his way home on an automobile trip through Maine and New Hampshire. Mr. Perry was the founder of the William H. Perry Co., president of the United States Robbin & Shuttle Co. and director of the United National Bank and the Providence Engineering Works. Born in London, England, Aug. 25, 1847, he went to New York with his parents when a boy and was educated in the public schools. He took up his residence in Providence about 50 years ago, starting in the scrap iron business in 1867.

JAMES E. CAMP, for many years superintendent of the cabinet department of the former Wheeler & Wilson Sewing Machine Co., which later became the Sewing Machine Cabinet Co., a subsidiary of the Singer Sewing Machine Co., died Aug. 22 at his home in Bridgeport, Conn., of pleurisy. Mr. Camp was born in Sheffield, Mass., Aug. 25, 1853, and except for a short service as a city official had been with the company from boyhood, a service of nearly 50 years.

ARTHUR KNEISEL, national treasurer for the American Association of Engineers, died in Chicago Aug. 17. He was one of the original promoters of the association and was secretary up to this year. He was born in Lexington, Ky., in 1880, and was graduated from the University of Kentucky. At the time of his death he was president of the Utilities Development & Sales Co.

MOSES W. REDSHAW, Bridgeport, Conn., general superintendent of the Bridgeport works of the Singer Sewing Machine Co., was killed Aug. 22 by a fall through a hole in the floor of the factory, where repairs were being made. Mr. Redshaw was 65 years old and had been connected with the business for 45 years.

THOMAS G. CONNOR, age 58, and for some years credit manager of the Republic Iron & Steel Co., died at his home in Youngstown, Ohio, on Monday, Aug. 27. He had been ill for about two weeks.

Pittsburgh and Nearby Districts

The Columbia Steel & Shafting Co., Carnegie, Pa., has recently bought some additional land in Cleveland on which it will at some future time erect a large warehouse, and carry in stock a complete line of its products for supplying its trade in the Cleveland district.

The Westinghouse Air Brake Co. has recently purchased 54 acres near its works at Wilmerding, Pa., to be used for probable future extensions.

The offices of the Pittsburgh Iron & Steel Foundries Co. have been removed to rooms 314 and 315 Oliver Building, Pittsburgh.

A 2,000,000-Ton Contract for Gogebic Ore

A recent statement concerning the operations of the Charcoal Iron Co. of America contains the first public announcement of a contract the company has made with the Midvale Steel & Ordnance Co. to deliver 200,000 tons of iron ore per year for ten years from the Yale mine on the Gogebic range. The ore is of Bessemer grade. In the same connection it is stated that the Charcoal Iron Co. of America has made a sale to another steel company of 25,000 tons of ore per year for a period of five years.

The Briggs & Stratton Co., Milwaukee, manufacturer of electrical ignition specialties, is now employing more than 200 girls and young women in places formerly filled by men. The women are working at punch presses, assembling and other duties of a light nature. As rapidly as practicable the women are being uniformly dressed in overalls as a safety precaution in the operation of machinery.

Sweeping Export Order Is Issued

President Wilson Extends List of Goods and Makes Shipment More Difficult—Manufacture of Munitions in Canada Curtailed

WASHINGTON, Aug. 28.—President Wilson has delivered a body blow to Germany in the form of a proclamation making it practically impossible for American goods to be shipped to that country either directly or indirectly. Incidentally, all the neutral countries contiguous to Germany will suffer, for it is apparent that the United States is prepared to go to any lengths to prevent its products from reaching the German Empire. The President's proclamation is a revision and a very material extension of the list of goods for the exportation of which licenses must be procured and brings nearly all the important products of the country under the embargo ban.

"The purpose and effect of this proclamation," says the President in an explanatory statement given out at the White House, "is not export prohibition, but merely export control. It is not the intention to interfere unnecessarily with our foreign trade; but our own domestic needs must be adequately safeguarded and there is the added duty of meeting the necessities of all the nations at war with the Imperial German government. After those needs are met, it is our wish and intention to minister to the needs of the neutral nations as far as our resources permit. This task will be discharged without other than the very proper qualification that the liberation of our surplus products shall not be made the occasion of benefit to the enemy, either directly or indirectly.

"The two lists have been prepared in the interests of facility and expediency. The first list, applicable to the enemy and his allies, and to the neutral countries of Europe, brings under control practically all articles of commerce, while the second list, applicable to all the other countries of the world, makes only a few additions to the list of commodities controlled by the proclamation of July 9, 1917. It is obvious that a closer supervision and control of exports is necessary with respect to those European neutrals within the sphere of hostilities than is required for those countries farther removed.

"The establishment of these distinctions will simplify the administrative processes and enable us to continue our policy of minimizing the interruption of trade."

The first list, which prohibits the shipment of goods to Germany or to neutral nations the territory of which is contiguous to Germany, includes the following:

All kinds of arms, guns, ammunition and explosives, machines for their manufacture or repair, component parts thereof, materials or ingredients used in their manufacture, and all articles necessary or convenient for their use.

All contrivances for or means of transportation on land or in the water or air, machines used in their manufacture or repair, component parts thereof, materials or ingredients used in their manufacture, and all instruments, articles and animals necessary or convenient for their use.

All means of communication, tools, implements, instruments, equipment, maps, pictures, papers and other articles, machines and documents necessary or convenient for carrying on hostile operations.

Coin, bullion, currency, evidences of debt, and metal, materials, dies, plates, machinery and other articles necessary or convenient for their manufacture.

All kinds of fuel, food, foodstuffs, feed, forage and clothing, and all articles and materials used in their manufacture; all chemicals.

Machinery, tools and apparatus.

All metals, minerals, mineral oils, ores, and all derivatives and manufactures thereof.

The second list, which is applicable to all the countries of the world not included in the first list, is a revision of that embraced in the President's proclamation of July 9, with some important additions in the way of

steel products, machinery and machine tools, tin plate, lead, etc. This list includes the following:

Coal, coke.

Pig iron, ferro-silicon, ferro-manganese and spiegeleisen. Steel ingots, billets, blooms, slabs and sheet bars.

Iron and steel plates, including ship, boiler, tank and all other iron and steel plates $\frac{1}{8}$ in. thick and heavier, and wider than 6 in.

Iron and steel structural shapes, including beams, channels, angles, tees and zees of all sizes.

Fabricated structural iron and steel, including beams, channels, angles, tees, zees and plates, fabricated and shipped knocked down.

Scrap iron and scrap steel.

Tool steel, high-speed steel and alloy steels and machine tools.

Steel-hardening materials.

Aeronautical machines and instruments, their parts and accessories thereof, arms and ammunition.

All explosives.

Benzol and its derivatives, phenol (carbolic acid) and its derivatives, toluol and its derivatives.

Anti-aircraft instruments, apparatus and accessories.

All radio and wireless apparatus and its accessories, optical glass, optical instruments and reflectors.

All engines and motors operated by steam, gas, electricity or other motive power and their accessories.

Metal and woodworking machinery.

Oil well casing, oil well drilling implements and machinery and the accessories thereof.

Steam boilers, turbines, condensers, pumps and accessories thereof.

All electrical equipment.

Crucibles, emery, emery wheels, carborundum and all artificial abrasives.

Copper, including copper ingots, bars, rods, plates, sheets, tubes, wire and scrap thereof, lead and white lead; tin, tin plate, tin cans and all articles containing tin; nickel, aluminum, zinc, plumbago and platinum.

Industrial diamonds.

Radical Reorganization

The radical reorganization of the control of exports under the embargo provisions of the espionage act has been brought about as the result of an executive order signed by President Wilson Aug. 23 and made effective Aug. 27. Under this order the Exports Administrative Board, of which Vance McCormick is chairman and which heretofore has acted in an advisory capacity to the Exports Council, becomes the active controlling body with full executive authority. As the result of this change, the Exports Council, which embraces the Secretaries of State, Commerce and Agriculture and the Food Administrator, becomes a mere advisory body and under ordinary conditions will exercise no function of importance. So sweeping are the changes made by the President's order, however, that the question has been raised as to whether the administrative board has sufficient authority under existing law to discharge the duties devolving upon it and it is possible, if not probable, that Congress will be asked to make important amendments in the espionage law that will not only clothe the new administrative board with full powers but that will increase the authority of the President to direct and control export shipments.

The object of the reorganization of the control of exports, which heretofore has been administered by the Department of Commerce, is to simplify procedure in the granting of export licenses. Under the system heretofore in force, rulings of the administrative board made in pursuance of the shaping of an export policy have first been laid before the Exports Council and after approval have been sent to the President, who, after giving them his endorsement, has directed the

Secretary of Commerce to put them into force. So much red tape has operated to slow down the routine work of granting licenses and there has been considerable complaint of delay. The matter was finally taken up by the administrative board which framed the reorganization project to which the Exports Council promptly gave its approval. Hereafter the administrative board will rule upon all questions concerning applications for licenses and will formulate the general policy of export control and frame all regulations for its execution.

Important Question as to Salaries

A serious difficulty has been encountered by the administrative board in severing its relations with the Department of Commerce. Congress some time ago passed a statute forbidding a commission or board not specifically created by legislation to expend Government funds. The administrative board maintains a large staff of experts and clerical employees, but, under the letter of the statute referred to, has no authority to pay them. Heretofore these employees have been carried on the rolls of the Department of Commerce, which has the necessary funds to provide their compensation. As a makeshift, this department will continue to pay the compensation of the board's entire staff, but as there is a serious question as to the regularity of this procedure, some other arrangement will be perfected as soon as possible. The President has a large fund which he can expend for war purposes without making any accounting, but the drafts on this appropriation for war purchases and for services rendered in a confidential capacity are so heavy that it is improbable that any of it will be utilized to keep the administrative board going. The matter is under consideration by law officers of the Government who may hold that the embargo section of the espionage act gives the board sufficient status to justify it in disbursing funds. Otherwise Congress may be asked to pass a supplemental law meeting this difficulty and otherwise expanding the embargo provision.

Method of Procedure

The Administrative Board has promulgated the following notice regarding future procedure in applying for licenses:

Beginning with Monday, Aug. 27, applications for export licenses should be made to the Exports Administrative Board, 1435 K Street, Washington, D. C., or to the branch office at 11 Broadway, New York, or they may be filed at any of the branch offices of the Bureau of Foreign and Domestic Commerce, Department of Commerce, at Boston, Chicago, St. Louis, New Orleans, San Francisco and Seattle, where blank application forms may be obtained. Licenses will be issued at the branches of the Bureau of Foreign and Domestic Commerce in all cases possible, but in certain cases it will be necessary for applications to be forwarded to the office of the Exports Administrative Board in Washington.

Licenses will ordinarily be good for 60 days, unless revoked prior thereto, and at the expiration of that time must be renewed to be valid. In sending applications to Washington, they should be addressed to the Director of the Bureau of Export Licenses, 1435 K Street, N. W.

In case of necessity, exporters may telegraph their application to Washington, but in this event they must be careful to see that all the information required by the proper form is contained in the telegram. In order to avoid unnecessary delays, exporters should endeavor to arrange to send in their applications at least two weeks in advance of the proposed date of shipment. All regulations issued by the Exports Administrative Board will be published in the "Official Bulletin," published daily by the Committee on Public Information, and in "Commerce Reports," issued daily by the Department of Commerce, and it is suggested that shippers avail themselves of these publications to keep themselves posted on any changes which may be made from time to time.

Discontinuing Manufacturing

The recently promulgated ruling requiring exports of steel products to Canada to be licensed has been closely followed by an announcement by the Dominion Government in the form of an official statement emanating from the Imperial Munitions Board to the effect that the manufacture of munitions in the Domin-

ion is no longer necessary and will be discontinued except in certain lines in which reduced quantities will be produced until further notice. This statement is as follows:

Toward the close of 1916, the capacity for producing munitions in Great Britain had so increased that the minister of munitions decided that it was unnecessary to continue the production of munitions in the United States for British account, except for a few special lines. The production in Canada, however, was continued as before.

The minister has now advised that it is unnecessary to continue production in Canada. He has directed that certain lines shall be discontinued, that other lines shall be produced in lessened quantities, while some lines are to be continued as at present.

The effect of this will be to stop the production of shells and components at some plants which are now producing sizes no longer required.

In other plants where shells are made of sizes of which a reduced output only is required, it will mean working during the day only, thus stopping night work. In other plants, however, where sustained production is required, operations will be continued night as well as day.

The attention of officials here has been directed to this statement by manufacturers who have been requested to supply the British Government with certain war material which it is understood they have heretofore secured in Canada, and the question has been asked as to whether the British Government is cutting down its demands on Dominion manufacturers because it expects to buy the same articles for less money in the United States. Canadian manufacturers have been permitted to make handsome profits on the goods they have furnished the Government and have in turn been subjected to heavy war profits taxes. Officials here declare there is no connection between the buying now being done in the United States for the Allies and the closing out of orders on Canadian factories. Up to the present time, practically all the purchases made for the Allies in the United States have been on contracts made before the War Industries Board was organized and in many cases these have a considerable time to run. Certain of them are subject to cancellation provisions, but the majority will be carried out in accordance with the original terms. It is also pointed out in this connection that the British Government would pursue a very short-sighted policy if it closed down Canadian munition factories in order to buy cheaply in the United States in view of the fact that it is now commanding a very large revenue in taxes on the war profits of all manufacturing concerns in the Dominion and that the present prosperity of Canada is largely based on war business. W. L. C.

Limestone for Furnace Flux in 1916

The quantity of limestone marketed for furnace flux in the United States in 1916 was largely in excess of any previous record, due to greatly increased activity in the iron and steel industry. The quantity was 23,503,508 gross tons, valued at \$13,936,882. This is an increase of 4,604,785 tons or 24 per cent over that for 1915 and an increase of \$4,264,535 or 44 per cent in value compared with 1915. The average price per ton, according to returns made to G. F. Loughlin of the U. S. Geological Survey, increased from 51c. to 59c. Pennsylvania, the leading state, increased its quantity from 8,625,636 tons to 10,019,046 tons. Ohio was second, increasing its quantity from 2,698,321 to 3,281,324 tons. Michigan was third, West Virginia ranked fourth, and Illinois ranked fifth in quantity and sixth in value, with Alabama sixth in quantity and fifth in value. Other states, prominent as flux producers, showed corresponding increases. Maryland, formerly a small producer of furnace flux, produced 146,276 tons. New York was the only important state to show a decrease.

Work has been started at the Lackawanna Steel Co.'s plant at Buffalo on foundations for No. 9 blast furnace. It is expected that No. 8 furnace, now under construction, will be finished before the end of the year.

Chicago Machinery and Supply Men Have Outing

An outing held by the Machinery Club of Chicago at the Chateau Desplaines, Lyons, Ill., Aug. 25, proved an enjoyable affair. Members and their families to the number of 175 were present and the various games and contests afforded honors for a great many. A leading feature was a ball game of the indoor type, but played on the lawn, in which the contestants were the machinery men, captained by F. Le Roy Peterson of the Hendey Machine Co., and the supply men, headed by Norton A. Booz of the Machinists' Supply Co., in which the victors were the machinery men, the score being 29 to 7. During the game there were one or two incipient "riots," due to a certain machinery man "rooting" for the supply men, and the alleged traitor was ejected from the diamond repeatedly by Captain Peterson. Carl E. Neubert of the Warner & Swasey Co. directed the various contests participated in by men, women and children. Numerous prizes were awarded by M. F. Crawmer of the Detroit Twist Drill Co., chairman of the committee on arrangements, including one to Franklin Hardinge, president Hardinge Bros., Inc., and Mrs. Hardinge, by reason of their having been married 23 years and 9 months—longer than anyone else at the gathering. An address was made by Clyde W. Blakeslee of the Abrasive Material Co., president of the club, in which he referred to the opening at an early date of clubrooms for the organization.

An Improved Calculating Machine

The Marchant Calculating Machine Co., Emeryville, Oakland, Cal., has developed an improved form of calculating machine for handling operations in multiplication, division, square root, percentage, interest, discounts, etc. The machine consists of a setting dial, two auxiliary ones for giving the results and proof, an operating handle and an automatic shift for the carriage. If it is desired to multiply two numbers, for example, the multiplicand is set by pulling the setting levers to correspond to the figures. The operating handle is then turned as many times as the units figure in the multiplier, this result being indicated on one of the auxiliary dials, after which the carriage is shifted and the handle turned the number of times corresponding to the figure in the tens place of the multiplier. This process is repeated as often as may be necessary to complete the operation, the product being given on the larger of the two auxiliary dials, while the multiplier shows in the smaller one and the multiplicand is on the machine. In this way a proof of the calculation is provided. In division the operation is reversed, the dividend appearing on the larger of the auxiliary dials, while the quotient appears on the smaller. Aside from an absolute check on the accuracy of the calculations, considerable saving in time is claimed.

Split Steel Pulleys for Severe Service

As a substitute for special cast-iron pulleys for heavy duty, the American Pulley Co., Philadelphia, has developed a special split steel pulley. The diameters in which the pulley can be supplied range from 36 to 84 in. inclusive, with a bore of either 6 or 8½ in. Among the work for which these pulleys are designed is the driving of drop hammers, air compressors, centrifugal pumps, rock crushers and paper mill engines where the loads are both heavy and intermittent.

The Vulcan Steel Products Co. held a banquet at the McAlpin Hotel, New York, Aug. 17. Three members of the organization left Aug. 19 for the Far East. One of these was C. C. Irwin, manager of the Far East Division, and the others E. J. Parker, sales manager of the engineering and machinery division, who will organize a Japanese department at Yokohama, and Joseph Bayan. A. Micoli is shortly to leave New York for South America. He will travel through Argentine, Brazil and Uruguay.

Electrical Engineers' Convention

The program for the eleventh annual convention of the Association of Iron and Steel Electrical Engineers at the Bellevue-Stratford Hotel, Philadelphia, Sept. 10 to 15, provides for sessions both morning and afternoon beginning Monday morning, Sept. 10, at 9 o'clock, and concluding late on the following Friday. The Monday morning session will be a business meeting for members only. In the afternoon, papers will be read by Walter Greenwood on "Safeguarding Electrical Equipment" and by Walter C. Kennedy on "Heroult Electric Furnaces." The following papers will be read at Tuesday's sessions: "Factors Relating to the Economical Generation and Use of Electric Power in the Steel Industry," by Brent Wiley; "Central Station Power Supply to Iron and Steel Industry," by Joseph McKinley and Ray L. Baker; "Electrical Reversing Blooming Mills," by Ralph D. Nye, and "Electric Drives for Reversing Rolling Mills," by D. M. Petty. On Wednesday three papers will be read as follows: "Fuel Economy by Co-operation in Establishing a Better Practice in the Operation of Stacks and Boilers," by Joseph G. Worker; "Turbo-Generators," by Richard H. Rice, and "Manufacture, Selection and Use of Carbon Brushes," by E. H. Martindale. These papers will be followed by a patriotic meeting with address by Army and Navy engineers. The annual banquet, to which ladies are especially invited, will take place Wednesday evening. On Thursday motor standardization, control standardization and crane standardization will be discussed. Discussions will be led by W. T. Snyder, F. B. Crosby, T. E. Barnum and D. M. Petty. Two papers will be read at the Friday sessions, "Grab-bucket Coal Hoists with Dynamic Braking and Regenerative Braking," by James Farrington and R. H. McLain, and "Tool Steel Gears and Pinions for Mill and Industrial Service," by E. S. Sawtelle. Friday afternoon there will be an opportunity to inspect the Cramp shipbuilding plant, the shops of the Midvale Steel Co. and the Baldwin Locomotive Works.

Members are urged to attend this convention because of the interesting papers and discussion to be presented, and they are also urged to bring their wives, as the entertainment committee has made special arrangements to provide entertainment for them. F. D. Egan, Pittsburgh Crucible Steel Co., Midland, Pa., is president, and J. F. Kelly, National Tube Co., McKeesport, Pa., is secretary. Alfred H. Swartz, 10704 Churchill Avenue, Cleveland, Ohio, is chairman of the convention committee.

Freight Rates of Pig Iron and Billets Advance

Effective Aug. 20, the freight rates of pig iron and billets in carloads from Pittsburgh to points named below were materially advanced, and are now as follows:

	Pig Iron	Billets
Pittsburgh to		
New York	\$3.10	\$3.20
Philadelphia	2.90	3.00
Rochester, N. Y.	2.20	2.30
Baltimore	2.80	2.90
Richmond, Va.	3.30	3.40
Syracuse, N. Y.	2.30	2.75
Utica, N. Y.	2.90	2.90
Boston	3.30	3.60
Albany	3.15	3.20
Portland	3.30	3.60
Richwood, Va.	3.36	3.36
Rockland, Me.	3.90	4.20

At the Farrell works of the American Sheet & Tin Plate Co., Farrell, Pa., two women are now at work roughing on the cold rolls. These women will be able to earn about \$4.50 per day of eight hours after they have become sufficiently skilled to work at the prevailing piece rate. Observance of the officials at this plant leads to the belief that these women will become more efficient in a short time than the average man at this particular class of work.

Suwanee Iron Co., Grand Rivers, Ky., expects to blow in its No. 1 furnace early in September. Work will proceed at once on relining No. 2 furnace.

Machinery Markets and News of the Works

AIRPLANE PLANTS WILL BUY

Considerable Equipment Purchasing Likely

Pennsylvania Railroad Co. Places Large Orders for Government Locomotive Shop in France—Activities in All Lines

Buying of considerable equipment for airplane plants is forecasted by inquiries which have been made in the New York market during the past week. The Inter-continental Machinery Corporation, 165 Broadway, New York, has issued a list totalling about \$1,000,000 worth of machine tools, and from the types of machines listed it is inferred that this is for an airplane engine plant. The Trego Motors Corporation, New Haven, Conn., is inquiring for machine tools, and will issue a formal list soon. This concern plans building five twin-six engines per day. The Standard Aero Corporation, Plainfield, N. J., has purchased the John Stephenson Co. car works of the J. G. Brill Co., and will convert it at once into an airplane factory, and through its engineers, Paine, McClellan & Campion, 25 Church Street, New York, will purchase about \$300,000 worth of metal-working and wood-working machinery. The Simplex Automobile Co., New Brunswick, N. J., will close on its list of about 100 machine tools as soon as its contract with the Government is formally signed. This concern will concentrate all of its facilities and activities on airplane engine work. The Packard Motor Car Co., Detroit, will do likewise on its \$16,000,000 worth of motor truck contracts, though it may take on some aviation motor work. The Pierce-Arrow Motor Car Co., Buffalo, is said to be willing to participate in airplane engine manufacture in addition to its motor truck work for the Government. The Nordyke-Marmon Co., Indianapolis, has been buying additional equipment in Chicago for airplane engine manufacture. Orders have been placed also in Detroit and Cleveland by concerns engaged in making airplane motors or parts. Foreign demand continues active, France and Russia having closed recently for additional tools for airplane engines. The Aircraft Production Board is receiving bids for machine tools to be used on Government airplane work.

The Pennsylvania Railroad Co., Philadelphia, is buying on a large scale for the United States Government locomotive shop to be built in France. Orders for 18 cranes were placed last week, in addition to steam hammers, bending rolls, etc., and machine tools.

Plate-working machinery is in demand for export. Charles Haas, 50 East Forty-second Street, New York, will close this week for a number of such machines wanted for building industrial cars in France. The F. W. Horne Co., 2 Rector Street, has bought plate shop machines for shipyards in Japan.

Gun-forging plants, which were mentioned last week, are buying equipment. Some of these orders have been

placed in Cleveland. The Bullard Machine Tool Co., Bridgeport, Conn., has placed orders within the week for several hundred thousand dollars' worth of machine tools for the gun-finishing plant it will build for the Government. The Bartlett & Hayward Co., Baltimore, Md., has bought a considerable number of new machines for a munitions contract. The Jeanesville Iron Works of the Worthington Pump & Machinery Corporation, Hazleton, Pa., has received a contract from the Frankford Arsenal for shells and has been placing orders in New York and Philadelphia the past week for about 50 new machine tools. The Frankford Arsenal will soon complete a new fuse factory and will need about 200 new machines, mostly automatic screw machines and small turret lathes. The Eddystone Munitions Co., Eddystone, Pa., has about completed its Russian contract and, it is reported, will engage on an American munitions contract. It has inquired in Philadelphia for new tools. The Standard Roller Bearing Co. division of the Marlin-Rockwell Corporation has been placing orders in Philadelphia. This concern is also on a Government contract. The Rock Island Arsenal has been placing orders in Chicago. The Wagner Electric Co. plant at St. Louis is said to be well equipped for its gun carriage and caisson contract. The Hero Mfg. Co., Philadelphia, has received a Government contract for 1,074,000 gas masks.

Other miscellaneous buying has been done by the McKiernan & Terry Drill Co., Dover, N. J., and the Nathan Mfg. Co., Flushing, N. Y., which has a new plant for making brass parts for locomotives, having a contract with the Baldwin Locomotive Works, the American Locomotive Co. and the Lima Locomotive Corporation. The Electro Dynamic Co., Bayonne, N. J., has inquired for about 40 machines. The Fifth Avenue Coach Co., which will build a new plant for motor trucks in New York, is inquiring, and will issue a formal list soon. The American Car & Foundry Co., the Hughes Tool Co., Houston, Texas, and the Pan-American Motor Corporation, Decatur, Ill., have placed orders in Chicago. The Lycoming Foundry & Machine Co., Williamsport, Pa., has bought a few tools in Philadelphia. The Arguto Oilless Bearing Co. is building a new plant at Wayne Junction, Philadelphia, for making ignition systems, and will soon buy considerable equipment.

Some shipbuilding plants are going ahead regardless of delay at Washington in giving out new ship contracts, this delay being due to the need for new appropriations by Congress. The Federal Shipbuilding Co., New York, has placed large orders for plate and boiler shop equipment, and will probably issue new lists this week of cranes and equipment required for machine and forge shops. The Chester Shipbuilding Co., Philadelphia, is placing orders for its Bristol, Pa., plant, known now as the Merchants' Shipbuilding Corporation. The Pusey & Jones Co., Philadelphia, is expected to come into the market soon for tools for a new machine shop and tool house to be built at Wilmington, Del.

Crane business is still active. In addition to the 18 cranes ordered by the Pennsylvania Railroad Co. for the

Government locomotive shop in France, there recently has been placed one of the largest crane contracts in some time, the Ashland Steel Co., Ashland, Ky., having bought about \$300,000 worth. The Pawling & Harnischfeger Co., Milwaukee, Wis., got the order for overhead cranes.

The Government is expected to place contracts soon for 500 storage battery electric trucks, for which makers are now preparing estimates.

The National Machine Tool Builders' Association is canvassing its membership by mail to ascertain the number of machine tools available for Government work, and subject to the commandeering process, if necessary. It is expected that within the next month large Government orders for shells and other war supplies will be distributed.

New York

NEW YORK, Aug. 28.

Developments of the past week in the machine-tool market center largely around the airplane program of the United States Government. The Inter-Continental Machinery Corporation, 165 Broadway, has issued a list aggregating about \$1,000,000 worth of tools, which is believed to have been on behalf of an airplane engine concern. The Trego Motors Corporation, New Haven, Conn., is making inquiries for tools, and will issue a list soon for sufficient equipment to turn out five twin-six aviation engines per day. The Standard Aero Corporation, Plainfield, N. J., has purchased the plant of the John Stephenson Co., Elizabeth, N. J. (J. G. Brill Co.), and will convert it rapidly into an airplane factory. All of the airplane but the engine will be made in this plant, which has 175,000 sq. ft. of floor space. Metal-working and wood-working machinery, totalling about \$300,000 in value, will be purchased by Paine, McClellan & Campion, engineers in charge, 25 Church Street, New York. Eventually this concern expects to make airplane motors also. Orders will be placed by the Simplex Automobile Co., New Brunswick, N. J., on its list of about 100 machines, which was mentioned last week, as soon as the contract with the Government is formally signed. The Simplex plant will be devoted exclusively to the manufacture of airplane engines, and the company will not produce pleasure cars after starting on its airplane contract. Delivery of some machines has been requested as early as October, while on others Jan. 1, 1918, is specified. The Pierce-Arrow Motor Car Co., Buffalo, is said to be ready to take on considerable airplane engine work in addition to its Government truck contract, and, it is reported, will considerably reduce its output of pleasure cars. The Packard Motor Car Co., Detroit, which, as previously reported, has motor truck contracts worth \$16,000,000, will concentrate all of its facilities on this work, with the possible addition of airplane engine manufacture. The Packard company is inquiring for additional machine tools.

Not only in this country is the building of airplanes being rushed. England, France and Russia have been steadily buying machine tools here, and the demands recently from France and Russia have been exceptionally large and urgent. One concern reports that about half of the orders on its books for grinding machines are for airplane work abroad.

The Pennsylvania Railroad Co. last week closed for 18 overhead electric cranes wanted for a locomotive shop which will be built in France for the United States Government. It is said that the French plant will approximate in size and equipment the Trenton locomotive shop of the Pennsylvania Railroad. A large quantity of equipment is being purchased, including steam hammers, bending rolls, bolt and nut machines, etc., and a wide line of machine tools. It is reported that hundreds of machines will be bought, and in most instances very early deliveries are specified. The orders for cranes were placed with the understanding that deliveries would be begun in 60 days and completed in 90 days. Crane builders who could make such deliveries got the work, each company being invited to select any part of the order that it could guarantee to fill within the time specified. Twelve 5-ton, two 30-ton and four 65-ton cranes were bought.

Charles Haas, 50 East Forty-second Street, New York, has received bids for about 30 plate-working machines, including punching, shearing, drilling and bending machinery, to be shipped to France. It is understood that this equipment will be used in France for the manufacture of industrial cars. The F. W. Horne Co., Tokio, Japan, has closed during the past week through its New York office, 2 Rector Street, for a number of machines needed for shipbuilding in Japan.

The Tacony Ordnance Corporation, 50 Church Street, New York, is understood to be placing orders through the Government for equipment of its gun forging plant at Tacony, Pa. The Bullard Machine Tool Co., Bridgeport, Conn., placed orders during the week aggregating several hundred thousand dollars for its gun finishing plant at Bridgeport. The Bartlett & Hayward Co., Baltimore, Md., has bought considerable additional equipment for work on a Government munitions contract.

The McKiernan & Terry Drill Co., Dover, N. J., has been placing orders during the past two weeks for machine tools. The Electro Dynamic Co., Bayonne, N. J., a subsidiary of the Bethlehem Steel Corporation, has inquired for the following equipment: Two vertical boring mills 48 in. and 72 in., 2 tool grinders, 2 hand screw machines, 1 spot welding machine, 1 portable welding outfit, 1 press for pressing on commutator, 1 16 x 12 ft. engine lathe, 1 12 x 6 ft. engine lathe, 1 bolt cutter, 1 disk grinder, 2 surface grinders, 3 floor grinders, 1 pyrometer, 1 quenching tank, 1 grinding machine, 1 core plate drying oven, 1 oil tempering furnace, 1 alligator shear, 1 500-lb. blacksmiths power hammer 2 inclinable cutting presses, 1 counting platform scale, 2 one-spindle drill presses, 1 keyseater, 1 four-spindle drill press, 1 polishing stand, 2 armature coil taping machines, 1 commutator under-cutting machine, 1 armature banding machine, 1 keyseater, 1 commutator oven, 1 26-in. turret lathe, 2 power hack saws, 1 inter-pole coil winding machine, 1 5-in. cutting off machine, motors, controllers, etc.

The Fifth Avenue Coach Co., New York, is inquiring for equipment for its new motor truck plant, and, it is reported, will issue a formal list soon.

The Nathan Mfg. Co., 416 East One Hundred and Sixth Street, New York, is completing a factory at Flushing, N. Y., where it will engage in the manufacture of brass parts for locomotives, having contracts with the American Locomotive Co., Baldwin Locomotive Works and the Lima Locomotive Corporation. The company has bought a considerable part of its equipment.

The Federal Shipbuilding Co., 54 Dey Street, New York, has closed during the past week for about 20 or more heavy machines for its plate and boiler shops, and is expected to complete its purchases for these two shops this week. New lists will be issued, probably this week, for machine shop tools, forge shop equipment, cranes, etc. Other shipbuilding companies which were expected to come into the market are being delayed by lack of definite word from the Emergency Fleet Corporation to go ahead, and matters will doubtless remain in this status until Congress passes the appropriation exceeding a billion dollars for which the United States Shipping Board now asks.

The Ashland Steel Co., Ashland, Ky., has placed crane orders aggregating \$300,000. This is said to be one of the largest purchases of cranes in some time. The Pawling & Harnischfeger Co., Milwaukee, got the order for the overhead electric cranes. An order for ladle cranes is reported to have been placed with the Alliance Machine Co., Alliance, Ohio, and the Morgan Engineering Co. received the contract for the charging machine and other steel-making equipment.

The Gisholt Machine Co. has moved its New York office, R. D. Heflin, manager, from 50 Church Street to the seventeenth floor at 30 Church Street.

The Willys-Morrow plant of the Willys-Overland Co., Elmira, N. Y., which is busily engaged on airplane engine parts for the Curtiss Aeroplane & Motors Corporation, will be increased in size by the addition of three more factory buildings to cost about \$300,000.

Brinsley & Marcus, York Building, Chesser Street, Adelaide, South Australia, will go into the manufacture of woodenware, toys, ice-boxes and sundry household woodenware. They will require woodworking machinery and electric motor equipment. Manufacturers are invited to send catalogs and discount sheets, quoting f.o.b. vessel at New York. Payment will be made in New York against documents.

The McCarthy Drill & Tool Corporation, Toledo, Ohio, with executive office at 30 Church Street, New York, has purchased the Toledo Drill & Tool Co., Toledo, which has just moved into a new two-story factory building. The company's products will be chiefly high-speed drills and cutters and reamers. Prompt delivery of both millimeter and inch size high-speed twist drills is offered.

The Fleischmann Vehicle Co., 518 East Eightieth Street, New York, has commenced the erection of a new two-story extension to its plant, about 75 x 90 ft., at 529-33 East Eightieth Street. Peter Damm is president.

The Triple Six Motor Corporation, New York, has been incorporated with a capital of \$375,000 to manufacture aircraft. R. I. Guthmann and H. G. McClear, 115 Broadway, are the principal incorporators.

George V. Reilly, Louis H. Gunther and Samuel B. Howard, 65 Cedar Street, New York, have incorporated in Dela-

were the Masters' Metals Corporation, with capital of \$100,000, to manufacture metal products of various kinds.

The Downey Shipbuilding Corporation, 120 Broadway, New York, has been granted a mortgage of \$2,505,000 by the United States Shipbuilding Board Emergency Fleet Corporation to provide for the immediate development and construction of the new plant of the company at Mariners Harbor, Staten Island. The company recently acquired the steel fabricating works of Milliken Bros. at this location and has commenced the conversion of the plant into a shipbuilding works. Following the completion of an order received from the Government, the plant will specialize in the construction of standardized steamships.

The Gem Metal Products Corporation, Brooklyn, N. Y., has been incorporated with a capital of \$10,000 to manufacture metal goods of various kinds. E. Bobker and M. and I. Kleinfeld, 188 Hinsdale Street, Brooklyn, are the incorporators.

The Standard Sanitary Mfg. Co., 35 West Thirty-first Street, New York, manufacturer of steam fittings, plumbers' supplies, etc., with plant at Pittsburgh, Pa., has filed notice at Trenton, N. J., of amendment in its New Jersey charter, increasing the capital from \$10,000,000 to \$20,000,000 for expansion. Thomas Ahrens is president.

The Electric Welding Co., 220 West Forty-second Street, New York, has increased its capital from \$24,000 to \$256,000.

The Hammarlund Mfg. Co., Brooklyn, N. Y., has been incorporated with a capital of \$30,000 to manufacture machinery, models and equipment of various kinds. L. A. and O. Hammarlund and H. S. Scott, 1247 Ocean Avenue, Brooklyn, are the incorporators.

The Scripps-Booth Corporation, 2 West Fifty-seventh Street, New York, manufacturer of automobiles, has called a special meeting to increase the capital from 70,000 to 120,000 shares, with active operating capital of \$600,000. Clarence H. Booth is president.

H. H. Ramsay, L. C. Haggert and T. J. Ward, all of New York, have incorporated in Delaware the Automatic Straight Air Brake Co., with capital of \$25,000,000, to make car brakes to be operated by compressed air.

The Pursel Resilient Wheel Co., New York, has been incorporated with a capital of \$50,000 to manufacture automobile wheels, motors and engines. W. A. and H. J. Neumann and J. D. Pursel, 409 West 127th Street, are the incorporators.

Clemson Bros., Middletown, N. Y., manufacturer of hack saws, have awarded a contract for the construction of an addition to their plant on Highland Avenue to cost about \$40,000. Westinghouse Church Kerr & Co., 37 Wall Street, New York, are the contractors.

The Campbell Architectural Iron Co., Albany, N. Y., has been incorporated with a capital of \$475,000 to manufacture metal windows and allied specialties. Thomas Cochrane, J. A. Stephens and H. E. Campbell, 8 West Fortieth Street, New York, are the incorporators.

The Sill Stove Works, 524 Oak Street, Rochester, N. Y., has increased its capital from \$100,000 to \$200,000.

The Sullivan Motor Truck Co., Rochester, N. Y., has increased its capital from \$40,000 to \$80,000.

The United States Hoffman Co., 329 Temple Street, Syracuse, N. Y., manufacturer of clothes-pressing machinery, has awarded a contract for the erection of a new one-story, reinforced-concrete addition to its works, about 70 x 175 ft., on Taylor Street, to cost \$20,000.

The New York State Railways, Syracuse, N. Y., have had plans prepared for a new one-story shop and car barn, about 75 x 150 ft., to be erected at Burnet and Fairview Avenues. H. G. Throop is chief engineer.

The Catchpole Boiler, Foundry & Machine Co., 23 Jackson Street, Geneva, N. Y., manufacturer of boilers, castings, etc., has filed articles of incorporation under the name of the Catchpole Foundry Corporation, with capital of \$30,000, to operate a general foundry and machine shop business. The company has recently had plans prepared for an extension to its plant. A. G. Lewis, W. Howard and C. W. Rice are the incorporators.

The Erie Railroad is planning for improvements in its local roundhouse and shop buildings at Salamanca, N. Y., to cost about \$15,000.

The Suffolk Air Craft Co., Inc., Bayshore, L. I., has been incorporated with a capital of \$75,000 to manufacture aeroplanes and other types of aircraft. A. J. Croft and J. O'Kelly, Bayshore, are the incorporators.

Fire destroyed a portion of the plant of the Donner Steel Co., Abbott Road and Abby Street, Buffalo, N. Y., with loss estimated at about \$20,000.

The Buffalo Foundry & Machine Co., East Ferry Street and Fillmore Avenue, Buffalo, manufacturer of machinery and castings, has called a special meeting on Aug. 30 to increase the capital of the company from \$500,000 to \$1,500,000.

The Curtiss Aeroplane & Motors Corporation, Buffalo,

N. Y., is making rapid progress in the construction of additions to its plant on Elmwood Avenue. About 300,000 sq. ft. of floor area are ready for operations, and it is said that the company plans for the immediate occupancy of the new extension for the manufacture of metal parts for aeroplanes. The entire plant, consisting of about 1,200,000 sq. ft., will be ready for service within 60 days, and will be devoted to the production of metal parts for aircraft. Arrangements are now being perfected for the erection of additional structures to provide about 200,000 sq. ft. of manufacturing space. The company is planning to utilize its Austin Street works for the production of flying boats. W. A. Morgan is general manager.

The M. Hoagland's Sons Co., Rockaway, N. J., manufacturer of iron castings, is completing an addition to its foundry to increase the present capacity. It is expected to place the extension in operation about Oct. 1.

The National Vitaphone Co., Plainfield, N. J., has been incorporated with a capital of \$2,000,000 to manufacture talking machines. J. H. Greene, Jr., and C. B. Repp, both of Plainfield, and A. M. London, Elmira, N. Y., are the incorporators.

Walter Scott & Co., Eighth Avenue, Plainfield, N. J., manufacturers of printing presses and machinery, have awarded a contract for the construction of three one-story additions to their plant, 80 x 230 ft., 63 x 86 ft. and 20 x 43 ft., for increased capacity. It is said that a portion of the new works will be used for the manufacture of artillery carriages and anti-aircraft mounts for military service.

The Century-Plainfield Tire Co., Plainfield, N. J., has been incorporated with a capital of \$10,000 to manufacture automobile tires and kindred specialties. Charles P. L. Huston, 902 North Avenue; William F. Hart and James D. Grant, all of Plainfield, are the incorporators.

The Standard Aero Corporation, North Avenue, Plainfield, N. J., manufacturer of airplanes, has acquired the former plant of the John Stephenson Co. at Elizabeth, N. J., used as car works, for a consideration of about \$750,000. The establishment covers about 86 acres of property with water frontage on Staten Island Sound, and will be equipped and used by the new owners for the manufacture of aircraft and hydro-airplanes. It is said that the initial capacity will be over 200 machines a month and that 6000 hands will be employed. The company will maintain its present plant at Plainfield.

The Spicer Mfg. Co., operating a plant at South Plainfield, N. J., for the manufacture of universal joints, has recently filed notice of dissolution of the corporation with the Secretary of State. Clarence W. Spicer has been head of the company.

The Ransome Concrete Machinery Co., Dunellen, N. J., operating a plant on Second Street for the manufacture of concrete mixing machinery and allied equipment, has filed articles of incorporation with a capital of \$1,000,000. George T. Allen, Nathaniel Laird, Elmer H. Koller and John P. Flaver are the principal incorporators. Headquarters of the company are at 115 Broadway, New York.

Fire destroyed the celluloid rendering plant of the Levine Company, Passaic, N. J., with loss estimated at about \$35,000.

The New Process Pipe & Tube Bending Co., Elizabeth, N. J., has been incorporated with a capital of \$10,000 to manufacture piping and tubing of various kinds. Herman Kistner, 596 Adams Street, Elizabeth; A. and C. Froehlich, Newark, are the incorporators.

Since the beginning of the year, the Crucible Steel Co. of America has constructed additions to its Harrison, N. J., plant costing in excess of \$500,000. Erection is now under way of a new one-story extension to cost about \$165,000. Fire, Aug. 23, in the hammer shop caused a damage of about \$3,000.

The Wright-Martin Aircraft Corporation has been incorporated in New Jersey with a capital of \$5,000,000 to manufacture airplanes, hydro-airplanes and other aircraft. John Alvord, J. F. Alvord and T. W. Allen, all of Jersey City, are the incorporators.

The Union Tool Co., Jersey City, N. J., has been organized to operate a plant at 125 Union Street for the manufacture of tools and machinery. Clarence J. Duryea, 34 Columbia Terrace, Edgewater, N. J., and Robert C. Pelkington, 1455 Atlantic Avenue, Brooklyn, N. Y., head the company.

The Safety Insulated Wire & Cable Co., First Avenue, Bayonne, N. J., has taken out a permit for a one-story extension to its plant.

The General Auto Parts Corporation, 323 Adams Street, Newark, N. J., has filed plans for the erection of a new one-story molding shop.

The W. A. K. Motor Co., Newark, N. J., has been incorporated with a capital of \$50,000 to manufacture motors, engines and kindred products. William A. and V. P. Kretschmer, Plainfield, and William W. Lyons, East Orange, are the incorporators.

Louis Sacks, Newark, N. J., operating a foundry for the production of grey iron castings on Hamburg Place, has taken out a permit to build a new pattern room addition.

The Clarke Machine Co., Newark, N. J., has been incorporated with a capital of \$100,000 to manufacture automobile accessories of various kinds. D. M. Litwin, 9 Clinton Street; J. Mahaffey and H. Stevenson are the incorporators.

The Coit Machine & Engineering Co., 146 Coit Street, Irvington, Newark, N. J., has awarded a contract for the erection of a new machine shop and blacksmith plant to cost about \$21,000.

Contract has been awarded by the Continental Can Co. for a 52 x 250 ft., three-story addition to its plant at Syracuse.

The New York State Railroad, Syracuse, B. Tilton, general manager, has had plans prepared for a car-house, repair-shop and employees' building, 75 x 150 ft.

The U. S. Hoffman Co., Syracuse, N. Y., has awarded contract for erection of a factory 70 x 174 ft. on Temple Street. J. B. Spencer, manager, 110 Davis Street.

The John W. Danforth Co., Buffalo, has been awarded a contract by the Government to erect a concrete and steel storage building at the Naval Depot, Melville, R. I., at a cost of \$294,000.

Westinghouse Church Kerr & Co., New York, have the contract for erection of factory addition for Clemens Bros., Middletown, N. Y., to cost \$40,000.

The Diltz Machine Co., Fulton, N. Y., will construct a hydro-electric plant.

M. J. Erwin & Sons, Buffalo, have received a contract for erection of a 50 x 100 ft. factory for the Tock Screw Machine Corporation, Long Island City.

The Niagara, Lockport & Ontario Power Co. will build a power house extension 151 x 99 ft. at Lyons, N. Y.

The Remington Typewriter Co., Ilion, N. Y., has let contract for a factory addition 50 x 300 ft., four stories.

The Southwestern Graphite Co., Portland, N. Y., has been incorporated by A. B. Farnham and others, with a capitalization of \$100,000, to engage in the mining, refining and dealing in graphite and graphite ores, minerals, stone, clay, etc.

The Simons Machine Co., Albany, N. Y., Charles A. Simons, president, has completed plans for plant addition to cost \$12,000.

The National Electrolytic Co., Niagara Falls, N. Y., has begun construction of a heating plant on the Hydraulic Canal Basin.

The United Paper Board Co., Lockport, N. Y., has completed plans for a power plant to cost \$200,000. Construction will be begun at once.

New England

BOSTON, Aug. 27.

New England factories have been in the market the past week for considerable new equipment and the flow of orders from other sections continues without interruption. The labor shortage is becoming more marked and there is an increased number of large display "want ads" appearing in the daily papers of the industrial centers for machinists of all kinds. With only one or two exceptions these advertisements are all for New England metal-working plants and a large proportion of them state that the advertiser is engaged in Government work.

The Bullard Machine Tool Co., Bridgeport, Conn., has been the most active local purchaser of machine tools as it is busy securing equipment for its gun-making plant. The contracts for its erection have been awarded. The American Steel & Wire Co. is making extensive additions to its Fair Haven, Conn., plant and the Locomobile Co., Bridgeport, and the S. A. Woods Co., Boston, are building additions. The Marlin-Rockwell Corporation, New Haven, is planning to buy the plant of the Hopkins & Allen Arms Co., Norwich, Conn., if legal tangles due to the receivership of the latter business can be cleared up, and will complete an unfinished Belgian rifle contract. The Colts Patent Fire Arms Mfg. Co., Hartford, Conn., is adding to its floor space to take care of large Government contracts.

The Bullard Machine Tool Co., Bridgeport, Conn., has awarded a contract for a new plant. The main building will be two stories, 180 x 700 ft.; an administration and storage building, 60 x 165 ft., two stories; a boiler house, 50 x 50 ft., one story; power house, 30 x 50 ft., one story; coal storage building, 20 x 50 ft. The entire cost will be about \$1,000,000.

The Fore River Shipbuilding Corporation has put into operation a machine shop, 135 x 250 ft., which was built and equipped in 35 days.

The Maxim Munitions Corporation, New Haven, Conn., has

taken over the title to the plant and machinery of the M. M. Seward & Sons Co. plant on Grant Street, and has filed a mortgage to the United States Mortgage & Trust Co., New York, for \$500,000, covering the Seward property and the Maxim plants at Derby, Conn.

The Commercial Welding & Machine Co., Worcester, Mass., has been incorporated with capital stock of \$10,000. Gustaf A. Olin is president and treasurer.

The S. A. Woods Machine Co., 27 Damrell Street, South Boston, Mass., has awarded a contract for a machine shop addition, 90 x 107 ft., one story.

The American Steel & Wire Co., New Haven, Conn., has awarded contracts for a rope mill, 88 x 363 ft., one story; a steel mill addition, 50 x 125 ft., one story; a steel plant addition, 60 x 223 ft., one story; a two-story building, 31 x 35 ft.; and a factory, 50 x 100 ft., 1½ stories.

The Locomobile Co., Bridgeport, Conn., will build a new factory, 32 x 315 ft., one story.

The American & British Mfg. Co., Providence, R. I., is building a boiler house, 24 x 38 ft., one story.

The Colts Patent Fire Arms Mfg. Co., Hartford, Conn., is building a two-story addition from private plans.

The Kilborn & Bishop Co., 194 Chapel Street, New Haven, Conn., has begun the erection of a forge shop, 50 x 124 ft.

The Coppus Engineering & Equipment Co., Worcester, Mass., has secured a permit to erect a foundry at 85 Abbott Street.

The Marlin-Rockwell Corporation, Willow and Mechanic Streets, New Haven, Conn., has started work on a new factory, 60 x 65 ft., one story.

The Hepenstall Forge Co., Bridgeport, Conn., has awarded a contract for a two-story office building.

The Clinton Wire Cloth Co., Clinton, Mass., is having plans drawn for an annealing shop, 58 x 110 ft., one story. A contract for the foundation has been let.

The Sullivan Machinery Co., 30 Church Street, New York, manufacturer of air compressors and machinery, has commenced the construction of a three-story addition at its works, Claremont, N. H.

The Bay State Saw & Tool Mfg. Co., Roxbury, Mass., is building a one-story addition to its machine shop on Lake Street, Winchester.

The Line Drive Truck & Tractor Corporation, Portland, Me., has been incorporated in Delaware with a capital of \$4,000,000 to manufacture trucks and tractors of different kinds. W. S. Randall, Portland, is the principal incorporator.

The Hartford Faience Co., Faience Street, Hartford, Conn., manufacturer of electrical porcelain specialties, has commenced the erection of a new one-story addition, about 40 x 80 ft., to cost \$4,500.

The Housatonic Power Co., Waterbury, Conn., will build a two-story addition to its power plant on Freight Street to cost about \$25,000.

Philadelphia

PHILADELPHIA, Aug. 28.

The purchasing department of the Pennsylvania Railroad Co. is making extensive purchases of equipment for a locomotive shop in France to be built for the United States Government.

A considerable share of the business placed in this territory recently has been due to Government contracts, in which the Frankford Arsenal has played a prominent part. A new fuse factory at the Arsenal is nearing completion and will need equipment soon. It is said that 200 or more machines will be bought, principally automatic screw machines and small turret lathes.

The Jeanesville Iron Works Co., Hazleton, Pa. (Worthington Pump & Machinery Corporation), has a large shell contract from the Frankford Arsenal and will close this week on a list sent out two weeks ago of 50 or more machines, principally turret lathes, lathes, drills and radial drills. The Eddystone Munitions Co., Eddystone, Pa., has about completed a shell contract for the Russian Government, and has been buying some new equipment, and, it is said, will now work on a contract for the United States Government. The Standard Roller Bearing Co. division of the Marlin-Rockwell Corporation has been in the market for a considerable number of machines. This plant is on Government work. The Poole Engineering & Machine Co., which has recently closed another projectile contract with the Government, is said to have a well-equipped plant and may not need additional tools.

The Hero Mfg. Co., Philadelphia, manufacturer of drawn and stamped metalware, has received a contract from the United States Government for 1,074,000 gas masks for the

new National Army. This concern has been doing considerable work for the Government for some time past, principally on fuses and high explosive detonator parts.

The Lycoming Foundry & Machine Co., Williamsport, Pa., has been buying lately to provide for plant expansion, the company having closed a three-year contract to make motor parts for the Dort Automobile Co., Detroit.

Shipbuilding along the Delaware River is hampered somewhat by labor troubles and delayed delivery of material and equipment. The Chester Shipbuilding Co., E. L. Fries, purchasing agent, Finance Building, Philadelphia, is placing orders for the Bristol, Pa., plant, now known as the Merchants' Shipbuilding Corporation. The company, which has taken the contract for 12 steel shipways, has agreed, it is said, to complete the work within three months, and the shipway cranes will be delivered in four months. Inquiries are out for other equipment. The Pusey & Jones Co., Land Title Building, Philadelphia, will probably soon send out a list of its requirements for additions which will be built at its shipyard at Wilmington, Del. A new machine shop and a tool house are among the new buildings to be erected. The William Cramp & Sons Ship & Engine Building Co., Philadelphia, has bought two 5-ton cranes.

The Arguto Oilless Bearing Co. is putting up a new plant at Wayne Junction, Philadelphia, for the manufacture of an ignition system, and is making inquiries for equipment. It is said that this company will require a number of machines.

Philadelphia machinery dealers have put in bids for the equipment which will be required by the Simplex Automobile Co., New Brunswick, N. J.

Following out a new sales policy adopted some months ago, the Heald Machine Co., Worcester, Mass., grinding machines, has opened its own office in Philadelphia, in charge of S. M. Hershey, formerly with the Landis Tool Co., Waynesboro, Pa., the Hyatt Roller Bearing Co., Newark, N. J., and the Norton Co., Worcester, Mass. An office has been opened in the Commonwealth Trust Building.

The Pennsylvania Railroad, Broad Street Station, Philadelphia, has awarded a contract for the construction of a new one-story brick and reinforced-concrete shop building, about 56 x 100 ft., and power house for works operation, 50 x 50 ft., at its Girard Point plant, at a cost of \$42,000. The John N. Gill Co., 1215 Filbert Street, Philadelphia, is the contractor. The company is also taking bids for the erection of a two-story brick addition to its Harrisburg shops.

The Schneider-Bowman Co., Philadelphia, operating a foundry at 1612 Vandyke Street for the production of iron and steel castings, has been incorporated with a capital of \$100,000. A. W. Bowman is the principal incorporator.

The proposed new machine shop of the Midvale Steel Co., Widener Building, Philadelphia, to be erected at its Nicetown plant, will be a two-story structure, about 112 x 210 ft., and will be used as an extension of its ordnance department.

The Wood Mfg. Co., Seventh and Erie Streets, Philadelphia, has awarded contracts for the construction of a new one-story plant, about 75 x 260 ft., on Throne Street, Camden, N. J., to cost about \$50,000.

The Atlantic Refining Co., 3144 Passyunk Avenue, Philadelphia, will build a new one-story power house addition, 40 x 43 ft., to its plant at Thirty-sixth and Jackson Streets, to cost about \$21,160. Plans for the structure have been filed.

The Stott-Hecht Glass Works, Philadelphia, has been incorporated with a capital of \$150,000 to operate a local plant. E. M. Stott is the principal incorporator.

The Thermo Service Corporation, Philadelphia, recently incorporated in Delaware with a capital of \$10,000 to manufacture fireless cookers and metal goods, has filed notice of increase in its capital from \$10,000 to \$100,000. Wray C. Arnold and Robert C. Fender, Philadelphia, are incorporators of the company.

Isaac Dozer, 5632 Walnut Street, Philadelphia, is having plans prepared for a new one and two-story machine shop, about 90 x 92 ft., to be erected at Woodland and Yewdell Streets.

The Treen Box Co., Memphis and Tioga Streets, Philadelphia, is taking bids for the construction of a two-story and basement concrete and brick addition to its plant, about 51 x 100 ft.

F. R. Hansell, Philadelphia, and associates, have incorporated in Delaware the Conshohocken Steel & Alloy Corporation, with capital of \$350,000, to manufacture iron and steel products. S. C. Seymour, Camden, N. J., is also an incorporator.

The Hamilton R. Marsh Co., 210 South Eleventh Street, Philadelphia, has been awarded a contract by the New Jersey State Purchasing Commission for machinery for the manufacture of automobile registration markers to be installed at the State Prison, at a cost of \$78,375.

Henry Disston & Sons, Inc., Philadelphia, have awarded a contract for the construction of a one-story brick and concrete addition to their plant at Tacony, about 40 x 65 ft., to cost \$11,000.

The Department of Public Health and Charities, Philadelphia, is taking bids up to Sept. 12 for the construction of a new one-story power plant at its institution at Thirty-fourth and Pine Streets. Philip H. Johnson, 110 South Broad Street, is architect.

Construction has been completed of the new plant of the Westinghouse Lamp Co., on Pennington Avenue, Trenton, N. J., and the installation of machinery and equipment will be commenced at once.

A. H. Wirz, Inc., Chester, Pa., operating a tin and stamped metal plant at Fourth and Palmer Streets, is taking bids for the construction of an addition.

The Sun Shipbuilding Co., Chester, Pa., is taking bids for the construction of a one-story addition to its plant, about 26 x 75 ft.

The Bowen Anchor Co., Morton, Pa., has had plans prepared for additions to its plant to comprise a one-story foundry, about 90 x 200 ft.; one-story pattern shop, about 25 x 70 ft., and two-story office building, 25 x 45 ft. The Harry C. Eisenbise Co., Pennsylvania Building, Philadelphia, is engineer.

The American Sheet & Tin Plate Co., New Castle, Pa., has awarded contracts for the construction of a new two-story addition, about 56 x 70 ft., at its Shenango works, to cost \$50,000.

The L. & G. Belting Co., Reading, Pa., has been incorporated with a capital of \$10,000 to operate a local plant. D. H. Gruber, West Leesport, heads the company.

The Reading Stove Works, Front and Chestnut Streets, Reading, Pa., manufacturer of stoves, heaters, etc., is planning for extensions and improvements in its plant to cost in the neighborhood of \$300,000. The company has authorized a stock issue for this amount.

Casper H. Oerman, 614 West Poplar Street, York, Pa., operating a planing mill products plant, is doubling the capacity of the works by the construction of a two-story addition, 100 x 200 ft., to be used for the manufacture of steel steorage sleds.

The Lester-Jordan Machine Co., Washington Street, Norristown, Pa., manufacturer of machinery, is arranging for extensions in its plant. It is said that the capacity will be increased.

The Novelty Incandescent Lamp Co., Emporium, Pa., manufacturer of electric lighting specialties, has commenced the erection of a new one-story addition, 85 x 90 ft., to its plant at St. Marys, to cost about \$10,000.

The Columbus Chain Co., Fifteenth and Cumberland Streets, Lebanon, Pa., manufacturer of chains, will make enlargements in its plant to increase the present capacity. The company is dismantling the former West End rolling mills, and will utilize the structures for the proposed extension. It is said that the company will install considerable new chain making machinery.

The Watkins Tubeless Air-Cooled Auto Tire Co., Ingram, Pa., has filed articles of incorporation in Delaware with a capital of \$1,000,000 to manufacture special automobile tires. T. C. Watkins, Ingram, and Morgan Howells, Orville, Ohio, are the principal incorporators.

The United States Rubber Co. has commenced the construction of a new five-story addition, about 50 x 100 ft., to its Williamsport, Pa., works, to increase the present capacity. The company is also planning for the construction of further extensions on the site of its present Factory C, which will be dismantled and a new structure, about 75 x 170 ft., erected.

The Thomas Flexible Coupling Co., Erie, Pa., has been incorporated with a capital of \$60,000 to operate a local works. John Jorden, Jr., is the principal incorporator.

The Pennsylvania Railroad Co. has awarded contracts for the construction of new reinforced-concrete shops at its Irvington works, near Indianapolis, Ind. The structures will consist of a 30-stall roundhouse, machine and repair shops and power plant.

The Pittsburgh Sad Iron Works, Pittsburgh, has been incorporated with a nominal capital of \$5,000 to operate a local plant. H. G. Bash is the principal incorporator.

The Pittsburgh Metal Brazing Co., Pittsburgh, operating machine repair shops at 2939 Smallman Street, has filed articles of incorporation at Harrisburg with capital of \$16,000. J. H. Gray is head.

The Kutsche Machine & Foundry Co., Pittsburgh, has been incorporated in Delaware with a capital of \$200,000 to manufacture iron and steel products. Oswald Kutsche, Eli Thomas and William Elk, all of Pittsburgh, are the incorporators.

F. E. Geisler & Co., Commercial Building, First Avenue, Pittsburgh, have filed articles of incorporation with a capital of \$10,000 to manufacture ventilating machinery. B. A. Geler, Avalon, heads the company.

Charles E. Butler & Sons Co., Hazleton, Pa., operating the Pennsylvania Quarry Stripping & Construction Co., have acquired the interests of David Benjamin in the new machine shops and iron works erected during the past year. Extensions are being made in the plant, which will be used for the manufacture of mining and stripping cars, steam shovels and kindred products used in colliery operations.

Work has been started on the new \$30,000 plant for the Fidelity Electric Co., Lancaster, Pa., by L. V. Wright, contractor.

Alterations are being made at the Jeanesville Iron Works, Hazleton, Pa., so that work can be started on five million shells. A force of about 4000 men will be employed.

The Locomotive Foundry & Machine Co., Williamsport, Pa., will erect additional buildings and increase its working force to handle a large order from the Dort Automobile Co. The contract will keep the mills working for three years.

The Berwick, Pa., plant, American Car & Foundry Co., will start work on an order for 1000 box cars for the Government. The Milton, Pa., plant will build 300 tank cars for the Government to be used in France.

Baltimore

BALTIMORE, Md., Aug. 27.

The Potomac Electric Power Co., Fourteenth Street, N.W., Washington, D. C., is planning for the construction of a new power house on Benning Road, N.E., to cost about \$40,000.

The Bureau of Yards and Docks, Washington, D. C., will build a new electric power plant, about 100 x 200 ft., and distributing system at its Norfolk, Va., navy yard, to cost about \$800,000.

The Mann Shipbuilding Co., Baltimore, Md., recently incorporated, has acquired about 35 acres of property on Curtis Bay for its proposed new shipbuilding works with water frontage of about 3000 ft. The plant will specialize in the manufacture of cargo ships. The Mann Yacht Building Co., Light Street, will be affiliated with the new organization. J. D. Sweet, Syracuse, N. Y., is vice-president of the company.

The Baltimore Dry Dock & Shipbuilding Co., East Fort Avenue, Baltimore, Md., will build a new one-story power plant addition to its works, about 70 x 90 ft., to cost \$20,000. The structure will be known as Power House No. 7.

John C. Melville, Reisterstown, Md., has had plans prepared for a new one-story blacksmithing works.

The Burt Machine Co., 401 East Oliver Street, Baltimore, Md., a Delaware incorporation, has filed notice of increase in its capital from \$50,000 to \$150,000.

The High Point Machine Works, High Point, N. C., has been incorporated with a capital of \$50,000 to manufacture machinery. W. L. and W. W. Smith and V. J. Melvin, High Point, are the incorporators.

The Payne Valve Corporation, Nininger Building, Roanoke, Va., is planning for the purchase of new machinery for the manufacture of valves, particularly for automobile service. The equipment to be installed will include automatic screw machines, lathes and kindred apparatus, and is estimated to cost about \$25,000. T. L. West, Salem, Va., is president.

The Chesapeake & Ohio Railroad, Richmond, Va., has awarded a contract for the construction of a one-story addition to its roundhouse at Russell, Ky.

Fulton, Conway & Co., Louisville, Ky., manufacturers of blacksmithing specialties, have increased their capital from \$100,000 to \$150,000.

Chicago

CHICAGO, Aug. 27.

The National Machine Tool Builders' Association has addressed letters to machine-tool dealers asking them to supply the officers of the association with lists of the tools they have available for all kinds of work, the purpose being to ascertain just where the Government and private industries stand with regard to their needs for metal-working machinery. The Government, of course, is the essential consideration. It is expected that within the next month large Government orders for shells and other war supplies will be distributed, and it is predicted that the demand for lathes, and the smaller machines used for shell-making, will approximate that which swept the country at the outbreak of the war. Some dealers have large stocks of small lathes and hand screw machines.

Most of the dealers found the past week a rather quiet

one, and in no direction was there a rush, although a few good sales were made, especially of rebuilt tools. Among the buyers were the American Car & Foundry Co., which purchased a number of large turret lathes, the Hughes Tool Co., Houston, Tex., which also purchased large turret lathes, the Nordyke & Marmon Co., Indianapolis; the Pan-American Motor Corporation, Decatur, Ill.; and the Rock Island Arsenal.

It is learned that the Wagner Electric Co., St. Louis, has sufficient machinery to take care of the Government order for gun carriage and caisson wheel hubs it recently received.

Contracts have been let for a two-story factory, 40 x 35 ft., at 507 and 509 East Thirty-ninth Street, Chicago, for the F. B. Williams Co., manufacturer of hardware specialties. The estimated cost is \$15,000.

Work is being pushed by the General Electric Co. on the construction of a three-story building, 100 x 250 ft., at Oakley Boulevard and Harrison Street, Chicago, to cost \$175,000. A unique feature of the building, which is of mill construction, lies in the placing of the staircases and stairways, as well as the elevator shafts on the outside of the building walls, to permit safe exit in case of fire. They will be inclosed. The heating and operating plant will be in another building. The building is for the occupancy of the Illinois Miniature Lamp Division of the National Lamp Works, formerly located at Cleveland.

The Patterson-Sargent Co., Cleveland, Ohio, contemplates the construction of a five-story warehouse and factory, near its present paint plant at Twentieth and Lumber streets, Chicago.

Several improvements, including the installation of additional machinery that will about double its output are planned by the Gary Screw & Bolt Works, Gary, Ind. About \$100,000 will be spent, mostly for machinery, although some small buildings will be added. The company has a site of about four acres.

Nathan Himelfarb, 2429 West Adams Street, Chicago, Samuel Horwitz and others have incorporated the Commercial Bike Mfg. Co., with a capital stock of \$25,000.

S. Karpen & Bros., 636 West Twenty-second Street, Chicago, manufacturers of furniture, have obtained a permit for the erection of a one-story brick factory to cost \$5,000.

The American Mfg. Co., Brooklyn, N. Y., has purchased 15 acres in East St. Louis, on which, according to report, it will build a large rope and twine factory.

The Mitchell Machinery Co., Peoria, Ill., is planning to build a brick addition, 90 x 200 ft., to its plant in South Fourth Avenue, Peoria.

The Topp-Stewart Tractor Co., Clintonville, Wis., has started work on a new plant, and it expects to begin the manufacture of light tractors about Nov. 1. It has a capital stock of \$500,000.

W. W. De Long & Son, Appleton, Wis., architects, have completed plans for a new factory to be erected in Appleton for the Auto Body Works. Bids will be taken in a few days.

It is announced by F. E. Burrall, president Oneida Motor Truck Co., Green Bay, Wis., that work will be started on a factory 150 x 300 ft. on land that has just been acquired. The company was organized in April.

The Roof Motor Specialty Co., Anderson, Ind., has been incorporated with a capital stock of \$50,000 to manufacture motor and automobile specialties by Robert M. Roof, J. A. McMyler and W. N. Durbin.

The Parker Rust-Proof Co. of America, Detroit, of which Clark W. Parker is president, will establish a factory for the manufacture of its product in St. Louis.

The McDougall-Duluth Shipbuilding Co., Duluth, Minn., has awarded a general contract for the construction of shop buildings to cost \$225,000 to McLeod & Smith, contractors.

The Schweers Hardware Co., Shawano, Wis., is having plans prepared for a two-story, L-shaped, public garage and machine shop, 70 x 102 ft. and 40 x 70 ft., to cost \$25,000.

The Automatic Machine Co., Superior, Wis., has been incorporated with a capital stock of \$25,000 by Gustaf Engkelbrekt, E. G. Hoglund and Fritz Henderson.

The Adams Co., Dubuque, Iowa, manufacturer of machine tools and hardware specialties, has leased the plant of the Loetscher-Ryan Co., at Dubuque, for several years, to increase its manufacturing facilities.

The Motors Specialty Corporation, Chicago, has been incorporated in Delaware with a capital of \$150,000 to manufacture automobile carburetors, starters and kindred equipment. Richard James and S. J. Blumenthal, Chicago, are the incorporators.

James H. Rhodes & Co., West Austin Street, Chicago, manufacturer of metal cleaning specialties, has awarded contracts for the construction of a new four-story addition to its plant, about 100 x 125 ft., on Albany Avenue.

The Revere Motor Car Co., Chicago, a Delaware incorporation, has increased its capital from \$1,000,000 to \$3,500,000.

The Mueller Mfg. Co., Decatur, Ill., manufacturer of plumbers brass goods, has had plans prepared for a new one-story addition to its plant, about 50 x 150 ft., to cost \$20,000.

The Hytanix Metal Co., St. Louis, has commenced the erection of a new three-story factory, about 150 x 150 ft., to cost about \$10,000.

The Hercules Spring Bed Co., Kansas City, Mo., a subsidiary of the Cleveland Wire Springs Co., Cleveland, specializing in the production of bed springs, has acquired a two-story factory, about 75 x 115 ft., on West Ninth Street, for the manufacture of wire bed springs. C. H. Minturn is manager.

Milwaukee

MILWAUKEE, Aug. 27.

Conditions in the Milwaukee machine-tool industry show little change from those existing during the last two or three months, excepting that the flood of orders for single tools and small lots continues to advance delivery dates on ordinary contracts each week. Equipment for shops engaged in Government work is the source of the greatest demand at this time, and such business, naturally, is being given preference. It is impossible to point to any other factor as being a distinct feature of the present demand, as orders come from the largest variety of sources ever known and from all sections of the country. So far as foreign business is concerned, Milwaukee milling machine makers say that their agents are taking every machine that can be spared.

A large part of the demand for lathes and other tools is said to be due to the reorganization of shops engaged in various divisions of the metal-working industry to make a place for departments in which contracts for war munitions, weapons and supplies may be executed. This transformation of industry has placed many new buyers on the books of the machine-tool trade.

The entire industry is anxiously awaiting the disposition of claims for industrial exemptions from the selective draft, which now are being entered in large numbers by employers. A large number of such claims have been denied by local boards for adjudication by district appeal boards, merely as a matter of avoiding any charges of discrimination.

The Wisconsin Condensed Milk Co., Burlington, Wis., which has been operating a small tin container manufacturing plant in connection with its main condensery at Burlington, is erecting a complete new can manufacturing unit, 150 x 200 ft., of brick and steel, with sawtooth roof. The equipment will include five lines of automatic machinery, and a force of 100 to 125 men will be employed. C. R. McCanna is general manager.

The Madison-Kipp Lubricator Co., Madison, Wis., has completed additions and extensions to its works, which will enable it to increase its capacity from 75 to 100 per cent during the coming year. The company manufactures lubricating units for gas and oil engines, tractors, marine engines, steam hammers, machine-tools, grain separators and a variety of other purposes, and last year produced more than 500,000 units. The force has been increased to 225 men. T. E. Coleman is president.

Rieboldt & Walter, shipbuilders, Sturgeon Bay, Wis., are enlarging their facilities for manufacturing wooden steamers up to 300 ft. lengths. The additions consist of one metal-working and two wood-working shops. New bolt-cutting, punching, boring and other equipment will be installed. The company is building a 265-ft. steamer for the Crosby Transportation Co., Milwaukee, which has been commandeered, together with other work under way and on the books. The present force is 125 skilled operatives.

The National Enameling & Stamping Co., Milwaukee, has awarded a contract to W. G. Williams, local, for making alterations and enlarging numerous buildings for increased efficiency at a cost of approximately \$30,000.

The Pfister & Vogel Leather Co., Milwaukee, has plans for a two-story private garage and machine shop, 95 x 123 ft., of brick and concrete, at its Bay View plant, Stewart and Hilbert streets, Milwaukee. The estimated cost is \$50,000 with equipment. Herman J. Esser, Camp Building, is the architect.

The Universal Manufacturing Co., Racine, Wis., maker of steering gears and other automobile parts, has changed its corporate style to Lorenz Motors Co., and amended its corporate articles to provide for its engagement in the manufacture of engines, motors, motor trucks, tractors, traction engines, passenger automobiles, ships, weapons, munitions of war, airplanes, etc.

The Keller Pneumatic Tool Co., Fond du Lac, Wis., has begun the transfer of its fixture department to the new manu-

facturing plant now being completed at Grand Haven, Mich. As the new plant reaches advanced stages of completion, other departments will be moved, but it is not expected that the transfer will be completed until Jan. 1. Twenty-five tool-makers and machinists have accompanied the fixture department. The total working force numbers about 100 skilled men.

Schaffrin, Schmitz & Co., 3102 Cherry Street, Milwaukee, wholesale scrap metal and junk dealers, recently incorporated with \$45,000 capital, will erect a three-story warehouse, 40 x 142 ft., of reinforced concrete and brick construction. The architect is L. J. Laskin, 310 Caswell Block. The estimated cost is \$25,000.

The Water and Light Commission, Shawano, Wis., is closing bids today, Aug. 27, for furnishing all material and constructing approximately 4000 lin. ft. of 4 and 6 in. cast iron water mains. Julius Spearbraker is secretary.

The C. A. Shaler Co., Waupun, Wis., manufacturing vulcanizing machinery and portable vulcanizers, will erect a new warehouse and shipping building and use the space now devoted to storage to manufacturing processes.

A report from Madison, Wis., says that E. J. Haynes, of the Haynes Automobile Co., Kokomo, Ind.; Winthrop Burdick and C. E. Schinberg, Chicago, are contemplating the establishment of a plant in Madison to manufacture a convertible touring-camping motor car. It is stated that the Government already has placed an order for 500 of the units for the army. Further details are not divulged.

The United States Switch Co., a Delaware corporation, with a capital stock of \$1,334,925, has been granted authority to do business in Wisconsin. The official representative is J. W. Hubbard, Eau Claire, Wis., and the local interest is stated to be valued at \$200,000.

P. H. Slattery, Adell, Sheboygan County, Wis., has engaged Clare C. Hosmer, architect, Milwaukee, to design a one-story fireproof garage and repair shop, 45 x 120 ft., costing about \$12,500 with equipment. Mr. Slattery is Ford dealer.

The Universal Motor Co., Oshkosh, Wis., has increased its capital stock from \$25,000 to \$50,000.

The Wehr Steel Co., Milwaukee, has awarded the general contract for the erection of two 80-ft. bays of steel and brick construction to the Northwestern Bridge & Iron Co., Milwaukee.

The Jaeschke Bros. Foundry Co., Milwaukee, is completing work on a large shop addition and will award contracts at once for the erection of a new sand shed, of concrete and brick, 65 x 28 ft., at Thirtieth and Locust streets. The architects are Herbst & Hufschmidt.

The Hartmann-Grelling Co., Green Bay, Wis., founder and machinist, has awarded contracts for the erection of a new machine shop and manufacturing plant costing \$75,000, for occupancy by the Lawson Aircraft Corporation, Green Bay, Wis., incorporated recently with \$200,000 capital, as previously noted. The company has been operating in temporary quarters for about six months. Alfred W. Lawson is general manager.

The Bensen Speed Signal Co., Madison, Wis., has been incorporated with a capital stock of \$100,000 to manufacture and market signal devices for railroads, steamship, automobiles, etc. The incorporators are Louis Weldenbeck, Hal Martin and A. D. Campbell.

The Northwestern Bridge & Iron Co., 127 South Water Street, Milwaukee, is moving its machinery and equipment into its new structural plant at Hopkins Street and Lake Avenue, which will be in full operation about Sept. 1. The new plant is 100 x 200 ft., of steel and brick, and the investment is about \$100,000. The force of men is being increased to 150 and later will number 175 to 200. The present works on South Water Street will be abandoned. A. Pergande is president and general manager.

The Eastern Wisconsin Electric Co., Sheboygan, Wis., has awarded the contract for erecting a new power house, 60 x 90 ft., to the Northwestern Bridge & Iron Co., Milwaukee. It will involve about 200 tons. The steam generating installation will be of 6000-kw. capacity. The Fargo Engineering Co., Jackson, Mich., is consulting engineer.

The Wisconsin Gear & Axle Co., Milwaukee, has been incorporated with a capital stock of \$100,000 to engage in the manufacture of gears, transmissions, axles and other automobile, truck and tractor parts. The incorporators are Herman W. Noll, 1057 Muskego Avenue; Jacob Scharmer and Bernard A. Hoermann, all of Milwaukee. Plans will be announced later.

The Chicago Racine & Milwaukee Steamship Line, Chicago, has awarded a contract to the George W. Stiles Construction Co., 11 South LaSalle Street, Chicago, for erecting a reinforced concrete, steel and brick dock, warehouse and

manufacturing building, 150 x 156 ft., five stories and basement, on the Root River, inner harbor, Racine. The estimated cost is \$350,000. The architect is A. S. Hecht, 154 West Randolph Street, Chicago.

The U. S. Auto Radiator Co., Milwaukee, has been incorporated with a capital stock of \$2,500 by Joseph Kunkel, M. Resnick and Adolph H. Roethke.

The Topp-Stewart Tractor Co., Clintonville, Wis., has awarded the general contract for the erection of the first unit of its new gas tractor manufacturing plant to A. N. Carter, Clintonville. It will be 66 x 176 ft., of brick and steel, with sawtooth roof, and was designed by H. P. Schnetzky & Son, architects, Milwaukee.

The Wisconsin Welding & Cutting Co., 315 Fourth Street, Milwaukee, has engaged in the manufacture of a line of mechanical devices for garages and repairshops, consisting of jacks, "dollies," motor stands and light portable cranes and hoists. C. H. Hansen is manager.

The Silent Washing Machine Co., Clintonville, Wis., which is erecting a new plant, as already noted, will manufacture three types of washing machines, operated by electric, gasoline and hand power. The new plant, consisting of a small foundry, machine shop and wood-working shop, will be ready about Nov. 1.

A report from Racine, Wis., says that outside capital is negotiating with owners of river frontage in that city with a view of establishing a ship-building plant. Details are not divulged, but it is said that an option has been taken on the Williamson Lumber Co.'s dock property, with a frontage of 700 ft., near Mead Street bridge.

The Western Malleables Co., Beaver Dam, Wis., is installing considerable new machinery and equipment, including a 15-ton Brown hoist for general yard and shop duties. It is said that the hoist alone involved an expenditure of \$18,000.

The equipment of the former plant of the West Superior Iron & Steel Co., Superior, Wis., is being scrapped under the direction of an expert from the East, and the rolls and other machinery is being cut up into melting scrap by the oxy-acetylene process. The plant has lain idle for more than 10 years and is being entirely dismantled.

The former Main Street Iron Works, Marinette, Wis., is undergoing extensive repairs and alterations to make it suitable for occupancy by the Landover Truck Co., Chicago, which will move its plant and offices to Marinette shortly after Sept. 1.

Detroit

DETROIT, Aug. 27.

Government orders which have come to many Detroit industries the last few weeks are having a decidedly strengthening effect upon the machine tool market. Many plants are being converted for the manufacture of special materials, particularly those needed in the assembling of airplane engines. Practically all plants which have accepted orders for airplane engine parts have had to refit with new machinery and tools.

Transportation facilities are excellent and the labor situation is satisfactory, with an active demand for skilled mechanics.

The Olds Motor Works, Lansing, is erecting a two-story addition to its plant, 80 x 400 ft.

The Kales-Haskel Co., Detroit, has changed its name to the Kales Stamping Co.

The Michigan Drop Forge Co., Pontiac, manufacturer of steel forgings, has elected B. F. Esgar, president. John H. French, president Michigan Stamping Co., and Robert T. Herdegen, vice-president Dominion Forge & Stamping Co., Walkerville, Ont., are directors.

The Menominee Motor Truck Co., Menominee, Mich., has purchased the plant of the Richardson Shoe Co.

C. M. Smillei & Co., Detroit, has been organized with a capital stock of \$25,000 to manufacture tools and auto parts.

The Traverse City Motor Co., Traverse City, Mich., will begin operations next month with \$150,000 capital.

The Parker Rust Proof Co., Detroit, has selected St. Louis as one of the 26 cities in which it will build branch plants.

The Buhl Malleable Co., Detroit, has purchased adjoining property on the river front for the expansion of its plant.

The Auto Body Co., Lansing, is floating \$250,000 of treasury stock to provide for extensions.

The Lansing Screw Products Co., Lansing, has been organized with capital of \$70,000. Alfred Hermsdorf, president and general manager, was formerly production manager for the Michigan Screw Co.

The Walker Universal Joint Co., Detroit, will announce its factory location Sept. 1. It will produce universal joints for motor cars.

The Hackett Motor Car Co. has purchased a five-acre site in Grand Rapids.

The McDonough Automatic Regulator Co., Detroit, has incorporated to manufacture stokers, valves, etc.

The Benton Harbor Auto Machine Co., Benton Harbor, Mich., has been incorporated for \$174,000 to manufacture machinery and parts.

The General Motors Corporation, Detroit, will erect a drop forge plant to cost \$350,000.

Work has started on the first unit of a group of buildings for a pipe bending plant to be erected for Murray W. Sales & Co., Detroit.

The Lapeer Tractor-Truck Co. has purchased an eight-acre site at Lapeer, Mich. W. H. Tucker is president.

Buildings of the Wyant & Cannon Foundry Co., Muskegon Heights, Mich., were damaged by an acetylene explosion.

Among the new Michigan corporations are the Saginaw Malleable Iron Co., Saginaw, \$400,000; Riverside Machine & Plating Co., Jackson, and the Blashfield Furnace Co., Jackson.

The Riddell Mfg. Co., Louisville, Ky., has been organized to operate a local plant, for the manufacture of metal and iron specialties. W. O. Riddell and H. J. Thornton, both of Louisville, are the principal incorporators.

The General Motors Co., Detroit, Mich., has completed plans for the construction of a new drop forge plant to cost about \$300,000. The addition will consist of three one-story structures, 160 x 600 ft., 75 x 600 ft. and 65 x 300 ft.

The Fisher Body Corporation, Oakland Avenue, Detroit, has had plans prepared for a new one-story plant, about 90 x 550 ft., to be erected on West End Avenue, for its aeroplane department. Louis Mendelsohn is secretary.

Cleveland

CLEVELAND, Aug. 28.

A large volume of business has been placed in heavy tools by companies having Government contracts for gun forgings and additional inquiries are pending from the same sources. Punching and shearing machinery is in heavy demand, largely from Eastern shipyards. The Federal Shipbuilding Co. is placing orders for \$75,000 to \$100,000 worth of punching and shearing machines. The export demand for this class of equipment is quite active, and a Cleveland manufacturer has recently received orders from France, Russia, Japan, Norway and Sweden for small lots of machines. Inquiry for small lots of standard tools in the medium and smallest sizes is fairly plentiful, these coming largely from makers of airplane parts, motor trucks and other manufacturers engaged in Government work. There is a heavy demand from foundries for molding machines. Considerable second-hand machinery in round lots, largely automatic and screw machines, is being placed on the market by Eastern dealers.

It is understood that the Government will purchase about 500 storage battery electric trucks for use in France. Manufacturers are now preparing estimates on these.

The Friddle Motor Car Co., Cleveland, has been organized to bring out a new line of automobiles, and has purchased a small amount of machinery for development work.

The Cleveland Switchboard Co. will erect a new factory, one story, 80 x 140 ft., at 2925 East Seventy-ninth Street.

The Grabler Mfg. Co., Cleveland, has awarded a contract for a brick, steel and concrete addition to its foundry, 60 x 104 ft.

The K. C. Iron Works Co., Cleveland, has purchased a site on Sweeney Avenue on which it plans to erect a two-story factory, 75 x 125 ft.

The United States Tool Co., Cleveland, has acquired a two-acre site on West 106th Street, on which it plans to erect a new plant.

The American Can Co. has acquired a several acre site near its present Cleveland plant, where it plans the erection of a large plant extension.

The Cleveland Tractor Co., Cleveland, has placed a general contract with the Sam W. Emerson Co., Cleveland, for its plant additions, which will include a one-story building, 62 x 500 ft., and a two-story building, 80 x 100 ft. The Kline Bridge Co. will erect the steel.

The Grant Motor Co., Cleveland, has awarded a contract for the erection of its plant extension. This will be a two-story building, 60 x 260 ft.

The Kenney-McGreevy Foundry & Machine Co., Mansfield, Ohio, recently incorporated with a capital stock of \$20,000, will establish a plant in the building formerly oc-

cupied by the Phoenix Electric Co., and will make rough brass and iron castings. H. D. Kenney is president; Joseph Paule, vice-president; Andrew Cass, second vice-president; Hugh McGreevy, secretary, and Jacob Cousins, treasurer.

The Williams Foundry & Machine Co., Akron, Ohio, plans to erect a three-story addition, 50 x 275 ft., and install some new equipment.

The Climalene Chemical Co., Akron, Ohio, will build a new plant of brick construction, 50 x 80 ft. and three stories, contract for which has been placed.

The Defiance Machine Works, Defiance, Ohio, which recently announced an increase in its capital stock to make a large plant extension, advises that it will build in addition to its present line special wood-working and metal-working tools, including tools to be used in the building of automobile motor truck and airplane engines, heavy service drills, rail drills, multiple drills, etc.

The Lau Iron Works Co., Niles, Ohio, has been incorporated with a capital stock of \$350,000 by A. W. Lau and others to take over the business heretofore conducted as the Lau Iron Works Co. with A. W. Lau as proprietor. The company will erect a new plant between Girard and Youngstown, a four and one-half acre site for which it recently purchased. The company fabricates structural and decorative iron and steel work.

The Elgin Tractor Co., Piqua, Ohio, is planning to erect a two-story concrete factory building, 80 x 220 ft.

The Universal Boring Co., Lorain, Ohio, recently incorporated by H. J. Yeckley and others, will erect a factory on Eleventh Street in that city.

The Toledo Scale Co., Toledo, Ohio, has broken ground for a new plant in West Toledo.

The American Clay Machinery Co., Willoughby, Ohio, has awarded a contract for the construction of a one-story addition to its plant, 60 x 150 ft., to cost about \$30,000. The Austin Co., Cleveland, is the contractor.

Indianapolis

INDIANAPOLIS, Aug. 27.

The Lowry Oil & Gas Co. has been incorporated at Dugger, Ind., with \$25,000 capital stock, to drill and operate for petroleum. The directors are O. E. Dugger, Earl Robbins and Charles Lowry.

The Gary-Oklahoma Mining & Development Co. has been incorporated at Gary, Ind., with \$60,000 capital stock, to mine for oil and gas. The directors are John T. Marich, Gosa Marich and Kriss L. Aleksich.

In connection with the new yards now under construction at Richmond, Ind., it is reported the Pennsylvania Railroad Co. will build, in the early future, car repair shops and other terminal equipment to cost \$250,000.

The Farmers and Merchants Light & Power Co., which has been incorporated at Mongo, Ind., with \$500,000 capital stock, will build electric power plants in Northern Indiana and Southern Michigan. J. L. Hawk, Mongo, is president; Hiram Himebaugh, Bronson, Mich., vice-president, and Eli Z. Hawk, Mongo, secretary-treasurer. The largest plant is planned for a site on the St. Joe River, near Colon, Mich.

The M. T. R. Mfg. Co. has been incorporated at Indianapolis, with \$50,000 capital stock, to manufacture valves, internal combustion engines, etc. The directors are John L. McKenzie, William H. Truesdell and Albert Regan.

The Oakes Mfg. Co., Indianapolis, manufacturer of automobile parts and metal stampings, has increased its capital stock from \$35,000 to \$250,000.

The Motor Vehicle Co., Lafayette, Ind., has increased its capital stock from \$25,000 to \$75,000.

Cincinnati

CINCINNATI, Aug. 27.

The Government is in the market for a number of machine tools for the Aircraft Production Board. Bids will be opened to-day for 200 16-in. lathes, shaping machines, milling machines, etc. Requisitions for prices are also out on several small planing machines, precision lathes, profiling machines and other equipment. Rush orders have been placed for special boring machines for making cannon. Other business of this kind is pending.

Within the past few days several local firms were somewhat surprised to receive orders for lathes and other equipment from Detroit automobile manufacturers which generally cover two or three machines.

Labor troubles at Hamilton, Ohio, have not yet been adjusted, and one large machine shop has found it necessary to curtail operations on account of its foundry being idle.

The American Tool Works Co., Cincinnati, has made fast progress in removing its equipment into its new building and it now seems probable it will be able to have the new plant in full operation before Oct. 1.

The Cincinnati Frog & Switch Co., Oakley-Cincinnati, will erect an addition to its plant estimated to cost \$6,000.

The P. W. Brackett & Sons Co., Cincinnati, is having plans prepared for a new plant to be erected at Winton Place. Three buildings of reinforced concrete construction have been decided on, having a total floor space of 50,000 sq. ft.

The addition to the plant of the Hamilton Machine Tool Co., Hamilton, Ohio, recently mentioned, is now well under way. The building will be 45 x 290 ft., of brick and steel.

The Columbia Machine Tool Co., Hamilton, is moving into its new plant in South Hamilton. The building is of sawtooth roof construction and will enable the company to more than double its present output of shaping machines.

The new plant of the Springfield Welding Co., Springfield, Ohio, is nearing completion, and will be occupied within the next few days.

The Monitor Motor Car Co., Columbus, Ohio, has purchased a site on Third Avenue on which it intends erecting a building with 100,000 sq. ft. of floor surface. The present plant is on Mount Vernon Avenue.

The Automatic Control Trailer Co., Columbus, intends to add to its equipment for the manufacture of automobile and auto-truck trailers.

The Miami Trailer Co., Troy, Ohio, has commenced work on a two-story addition, 60 x 65 ft., of mill construction.

The Central South

LOUISVILLE, KY., Aug. 27.

Inquiries received by local manufacturers are almost all "live." This is taken to indicate that manufacturers do not come into the market except for necessities. Time of deliveries is an important factor. Boilers are very much in demand. Kentucky oil operators are clamoring for supplies of all kinds and every field reports development work being held up because of inability to obtain supplies.

The Henry Vogt Machine Co., Louisville, Ky., has taken new contracts for 25 boilers. Eight of these are 500-hp. water tube boilers for Cosden & Co., Tulsa, Okla., while the others are all 150-hp., return tubular boilers, horizontal, of which eight have been purchased by the Government for the cantonment at Louisville; two by the Standard Engineering Co., Washington, for Fisk University, Nashville, Tenn.; two by the Rockport Coal Co., Rockport, Ky., and five by the Aetna Refining Co. for a refinery to be erected at Louisville.

J. F. Wagners' Sons, Louisville, Ky., have the contract for a large quantity of sheet metal work for the Army cantonment at Louisville, Ky., and have been offered similar contracts for other army camps. The metal used is galvanized iron, 24 gauge.

The Illinois Central Railroad will shortly begin enlargement of its shops at Jackson, Tenn., and will purchase machinery to the amount of \$30,000. In addition a freight repair yard is to be established by the company at Frogmoor, Tenn.

Morris & Co., Chicago, have let a contract to Stewart & Johnson, Chattanooga, Tenn., for installation of a refrigerator plant in Chattanooga.

The Kingsport Pulp Corporation, Kingsport, Tenn., is asking for prices on two 100-ton hydraulic jacks and two 20-ton screw jacks.

Texas

AUSTIN, Aug. 25.

The drouth remains unbroken in a large area of the principal agricultural regions of the State. The poor outlook for a good yield of cotton and other crops is beginning to have a distressing effect upon the machinery and tool trade.

T. B. Atkins plans to build a factory at El Paso for the construction of concrete silo blocks under a new invention that he has patented which does away with wooden forms.

The Rio Bravo Oil Co. will lay a 6-in. pipe line from Damon Mound to Pledger, a distance of 11 miles. It will install railroad loading racks at Pledger.

The Gainesville-Red River Bridge Co., which has been incorporated at Gainesville, with a capital stock of \$60,000, will build a bridge across the Red River near Gainesville. The incorporators are S. M. King, J. W. Mahan and A. C. Whaley.

The Lone Star Ship Building Co., Baltimore, Md., which

has a capital stock of \$2,000 000, has been granted a permit to do business in Texas. It will build a large shipbuilding plant at Beaumont. Walter J. Crawford of Beaumont is state agent for the company.

Birmingham

BIRMINGHAM, ALA., Aug. 27.

The Hodges-Boiler Works, Mobile, Ala., is planning for additions in its plant to cost about \$50 000. The extensions will include a one-story machine shop, about 50 x 140 ft.; foundry, about 30 x 60 ft., and blacksmith works, 60 x 60 ft. D. G. Hodges is president.

The Jefferson Rolling Mill Co., Birmingham, Ala., has been incorporated in Delaware with a capital of \$50,000 to operate a local plant. W. B. Harper, H. H. Lind and L. R. Hanna, Birmingham, are the incorporators.

The Pacific Northwest

SEATTLE, Aug. 21.

The labor disturbances in western Washington seem to have lost their force, and more sawmills and other wood-working plants are in operation than at any time since the operatives quit to enforce demands for shorter work hours and higher wages. A number of the largest mills in Seattle, Grays Harbor country and Tacoma have resumed operations.

Fires throughout the forests of western Washington threaten damage and loss equal to the big losses of 1910. In many places fires are completely beyond control and tremendous losses have resulted.

According to statistics recently compiled, 12 per cent of the nation's ship construction is now under way in Seattle shipyards. Twenty-one per cent of the steel ship tonnage in the United States is on the ways of Seattle plants. Thirty-eight per cent, or 603,600 tons, of all the shipbuilding industries in the United States is being handled on the Pacific coast, with 65 per cent, or 364,600 tons of the steel ship tonnage of the nation. Of this amount, 32 per cent is being constructed in Seattle. Portland leads in the wooden ship construction, with Seattle second.

Pending the outcome of the conference under way in Washington by the United States Shipping Board, with representatives of a number of the Pacific coast steel shipbuilding plants and delegates from the metal trades and shipbuilding unions, steel workers on the coast will continue working, although it has been decided that the new wage scale agreement should become effective Aug. 15. The steel shipbuilding plants are asking that the Government add 25 per cent to the contract prices for ships in order to meet the proposed advance in wages and curtailment of working hours.

All the spruce lumber the Government and its allies need can be supplied by Oregon and Washington mills, and a big drive has been started to produce this lumber. It is stated that the Allies will need 117,000,000 ft. of lumber in the next 18 months for aircraft use. The newly organized Spruce Lumber Manufacturers' Association in Portland will handle all of the spruce orders. Initial orders for airplane spruce, aggregating 1,000 000 ft. a month, have been placed by E. T. Allen, representing the Government. While 1000 ft. is required to be cut for each machine, only about 200 ft. is used, the rest being waste timber.

While there is a remarkable run of salmon in the Northwest in some districts, the expected tremendous quadrennial run has failed to materialize, and a shortage is certain. Many thousands of dollars were spent by plants in equipping their canneries for the usual fourth-year run and, in many cases, this expenditure will be a complete loss.

E. D. Gallagher, Vale, Ore., plans the construction of a large reducing plant near that city, in the development of his nitrate properties.

L. H. Gray, of the L. H. Gray Shipping Co., Seattle, has purchased a large site near Ch'co. Wash., on which a shipbuilding plant costing \$70,000 will be erected immediately.

Plans for the proposed plant of the Schaafe Machine Co., Ltd., on Industrial Island, Vancouver, B. C., have been completed, and bids will be asked for soon. The main building will be 60 x 190 ft., the foundry, 40 x 80 ft., and the pattern room 20 x 60 ft. Modern equipment will be installed.

The 200 employees of the Seattle Car & Foundry Co., Seattle, went on strike recently for increased wages and 8-hr. day. Negotiations are under way between the company officials and the strikers.

The Star Brass Works, Seattle, has recently moved into its new \$10,000 home at 1309 Railroad Avenue. The capacity of the plant will be increased 50 per cent, and several new lines of brass machine products will be turned out. The

company reports demands that far exceed its capacity for brass products of all kinds.

The King & Winge Shipbuilding Co., Seattle, with capitalization of \$60,000, has been organized by Thomas J. King and B. Winge. The firm has operated for years under the partnership name of King & Winge.

The G. M. Standifer Construction Co., Vancouver, Wash., has opened its shipbuilding plant, and has enough contracts to keep the plant busy for several months.

The Puget Sound Art Glass Co., Seattle, has been awarded a \$6,000 contract for 3000 port lights to be installed in submarine chasers and other craft building at the Puget Sound Navy Yard.

The Pacific Coast Steel Co., Seattle, has announced that it will not ask exemption for any of the 62 workers called under the draft. This plant is almost exclusively engaged on ship contracts.

The Whalen Pulp & Paper Co., Vancouver, B. C., has entered the shipbuilding business. Two keels will be laid down at one time, and company will continue building ships for export trade. A 7000-kw. unit and a 750-kw. unit will be installed in the power house to be constructed.

Libby, McNeil & Libby, packers, North Yakima, Wash., will install special fruit-canning machinery. The company reports the biggest season since 1910.

The Port of Astoria, Ore., Commission has received bids for machinery to equip the new workhouse to be built to accommodate the new million-bushel grain storage bins. The Astoria Iron Works and Scow Bay Iron Works both submitted bids for frames and covers.

Canada

TORONTO, Aug. 27.

The McClavey Mfg. Co., London, Ont., has taken over the plant of the Canada Malleable Steel Range Co., Oshawa, Ont., which went into voluntary liquidation some months ago. Jong Lang will be superintendent and operations will commence immediately.

T. R. McMackon, Shedden, Ont., is in the market for a drag sawing machine.

W. E. Hawes, Port Stanley, Ont., is in the market for a 1-hp. motor, 25 cycle, single phase, also a 30-volt generator.

John A. Moody, London, Ont., is in the market for a 50-in. waterwheel and a Fitzgibbon marine boiler.

Damage to the extent of \$10,000 was caused to the plant of the Polson Iron Works, Toronto, by an electric storm. Two large electric cranes were destroyed, one falling against a 125-ft. steel stack, demolishing it completely. Considerable damage was also done to the machine shop.

Kingsville, Ont., is asking for prices and information on waterworks pumps. George Pearce is clerk.

K. A. Reeder, town clerk, Rosthern, Sask., is receiving bids until Sept. 1 for the construction of an electric light plant, also for oil engine or engines, and electrical machinery and switchboard, completely installed.

Bids are being received by K. Bethune for the erection of an addition to the plant of the American Can Co., Emerald Street North, Hamilton, Ont., to cost \$125,000.

Bids are being received by the architect, R. C. Clark, care Armour & Co., Chicago, for the erection of a four-story brick addition to the company's factory on Wentworth Street North, Hamilton, Ont., to cost \$30,000.

Bids will be called shortly by L. H. Bacque, care Hotel Dufresne, Three Rivers, Que., for the erection of a brick plant for the Three Rivers Lime, Sand & Brick Co., to cost \$100 000.

The Normandy Tire & Rubber Co., Ltd., St. Catharines, Ont., has been incorporated with a capital stock of \$1,000,000 by E. Moir, D. L. McDonald, W. J. McCoy, and others, to manufacture rubber tires, rubber goods, etc.

The General Devices & Fittings Co., Ltd., Toronto, has been incorporated with a capital stock of \$45,000 by John I. Sutcliffe, Hugh A. Munro, Edward J. Swift, and others, to manufacture electrical and mechanical appliances, machinery, etc.

A number of prominent Montreal business men, together with the Atlas Construction Co., Montreal, purpose to establish a plant for the manufacture of concrete steamships. It is claimed that these vessels can be constructed more readily than steel vessels and at less cost. The necessary capital has been secured. Plans for the first vessel have been prepared, which will be 200 ft. in length, and the thickness of the hull will be from 3 to 5 in. The cost is estimated at something less than \$100 000. The venture is largely experimental and should it prove successful a number of companies are ready to enter upon this line of business.

ESTABLISH

R

It has been found in the case of steel that, due to the conditions of hot reheating and forging, the transformation of ingots into metal has several peculiarities and that the character of the transformation is frequently different. In the case of ingots which have been solidified

In the case of those of high purity, entering the solidification of the cold ingot which expands very much in the process, the heat has not to be dissipated and the transformation

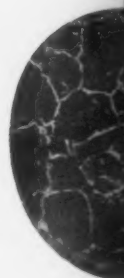


Fig.

The photograph shows the surface and center of the ingot.